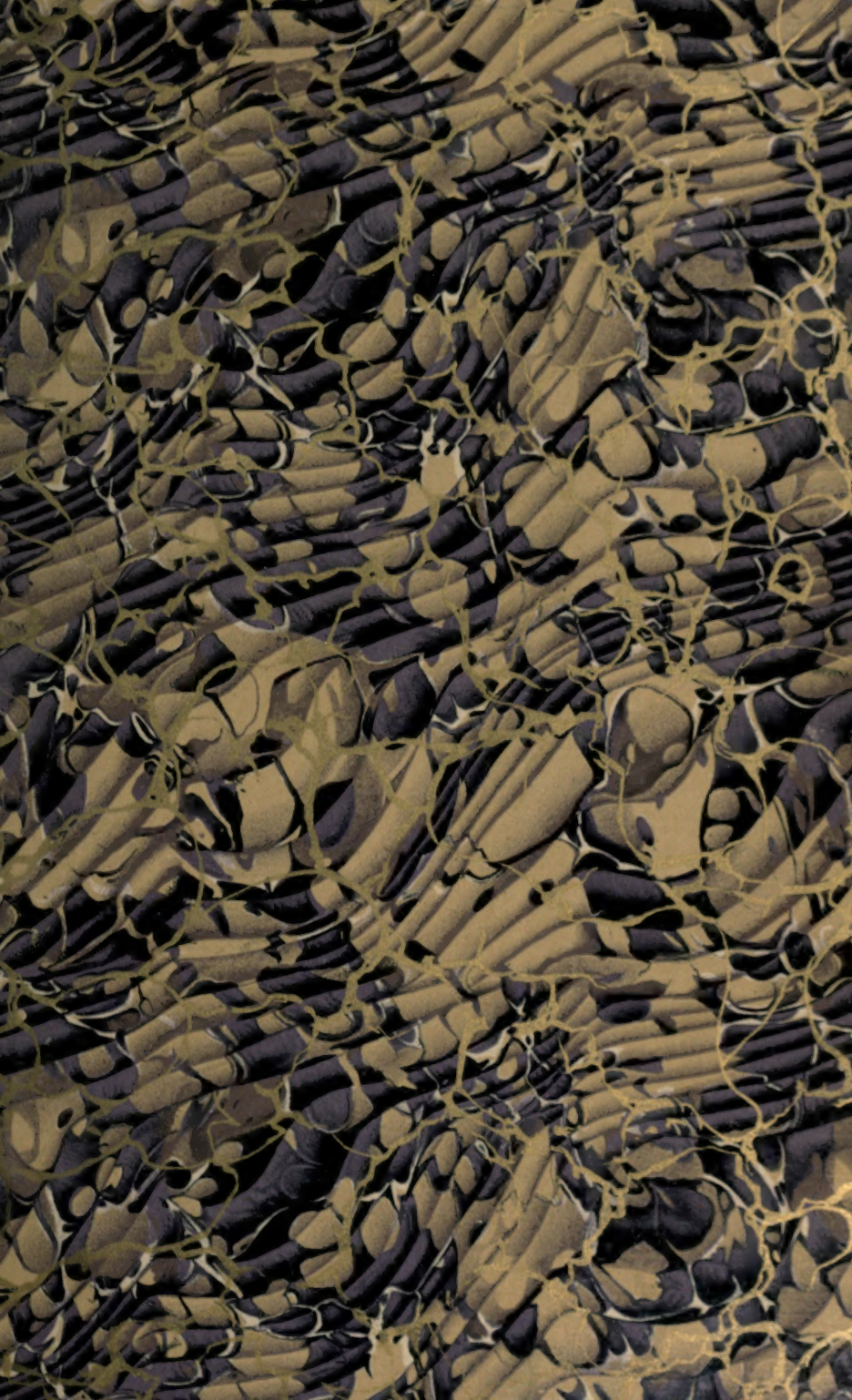






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Proceedings
of the
Mining and Metallurgical Society
of America



Volume XI
1918

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Mining and Metallurgical Society of America

Vol. XI No. 1

January 31, 1918

Bul. 116

ANNOUNCEMENTS.

Meeting of the Society.—The annual meeting of the Mining and Metallurgical Society of America was held, as required by the constitution, on Tuesday, January 8, 1918, at the Engineers' Club, New York, to elect officers and councillors for the ensuing year, to receive the reports of its retiring officers, and for the transaction of any business which might properly be considered.

As usual, the meeting was divided into two sessions; the first, more properly the business session, was called to order at 2:30 p. m., with an attendance of 17 members; the second session took place at 8:30 p. m., immediately following an informal dinner, in which 40 guests and members participated. The latter was particularly interesting because it gave the meeting an opportunity to absorb first-hand information regarding the present crisis in Russia. Messrs. F. W. Draper and J. P. Hutchins, the latter a member, and both long resident in Russia, were the speakers of the evening.

The election for officers and councillors resulted as follows: For President, W. R. Ingalls; for Vice-President, J. Parke Channing; for Secretary, Louis D. Huntoon; for Councillors, F. W. Bradley, J. V. N. Dorr, J. R. Finlay, R. C. Gemmell and Pope Yeatman, in their respective districts.

A full account of both sessions appears in this issue of the BULLETIN.

Due to the association of Donald M. Liddell with the War Credits Board, and his expected absence from the city, the President appointed H. H. Knox, in his place, as one of the tellers for the annual election.

New York Section.—For reasons already announced, no meeting of the New York Section was held in January.

As per notices sent to members of the New York Section, a meeting will be held on Thursday evening, February 14, 1918, at the Columbia University Club, 4 West 43rd Street; dinner

as usual will be served at 7 p. m. sharp. Mr. Simon Lake, the submarine inventor, is to speak, and will show by picture some of the recent developments of the submarine.

Members are requested to note that this meeting takes place at the new club house on 43rd Street.

Council.—The Council met on January 8, 1918, in the interval between the afternoon and evening sessions of the annual meeting. Among other matters submitted for consideration, was a request by C. W. Purington, Honorary Secretary of the American Committee of Engineers in London, for co-operation in a certain Eastern Siberian project. A special committee, consisting of S. H. Ball, Chairman; J. P. Hutchins and H. H. Knox, was later appointed by the President to take this matter under advisement.

On January 22, 1918, the Council met to fill a vacancy in its membership, to elect members of the Executive Committee, and to consider other business.

F. F. Sharpless was elected Councillor until the next annual election, vice J. Parke Channing who became vice-president on January 8. F. F. Sharpless and Pope Yeatman were elected members of the Executive Committee, of which W. R. Ingalls, J. Parke Channing and Louis D. Huntoon are ex-officio members.

These two meetings of the Council are reported in full elsewhere in this issue.

Counsel.—The Secretary is pleased to announce that Messrs. Douglas, Armitage & McCann, of this city, have agreed to render the Society legal assistance in routine matters. This firm of attorneys is especially prominent in legal work relating to mining.

Communications.—Under this heading, on page 5, will be found a notice from the Aeronautical Officer of the Aviation Examining Board. The attention of members is urged, with the hope that some may be in position to recommend men qualified to fill the positions in question.

Annual Medal.—At the evening session of the annual meeting, the President announced that the Gold Medal of the Society for 1918 had been awarded to Pope Yeatman, for "Distinguished Service in the Administration of Mines."

Presentation of the medal will take place at the Columbia University Club, on Thursday, March 21.

Honorary Membership.—After the annual dinner on January 8, announcement was made by the President that Dr. James

Douglas and Professor James F. Kemp had been elected the first two honorary members of the Mining and Metallurgical Society.

Bound Volumes.—Members are given the opportunity to order, and pay for, bound volumes of the BULLETIN when bills for dues are sent out by the Treasurer. Many took advantage of this opportunity for 1917, but those who did not, but do desire to possess the BULLETIN of that year in the bound form should communicate with the Secretary at once.

WAR TAX LAW.

In reply to a request by the Secretary, our attorneys, Messrs. Douglas, Armitage & McCann, have sent this office the following memorandum dealing with certain regulations relating to the Excess Profits Tax act as it affects the mining industry:

There have been two sets of regulations of great importance in the construction of our Federal Tax Laws recently issued by Commissioner of Internal Revenue Roper, at Washington. (These are Regulations No. 33 and No. 41.) All those mining companies interested in the return of either the Income Tax or the Excess Profits Tax should consult these regulations and particularly those portions having reference to the mineral or oil industries. Both of these sets of regulations are voluminous—and in many instances the bearing of them is not clear excepting to one familiar with the peculiar conditions of the property on which the return is made and with the several Income Tax and Excess Profits Tax acts, and with the various rulings thereon. Regulation No. 33, in Articles 171 and 172, bears on the deductions and depletion of wasting properties, i. e., mines or gas or oil wells—the determination of their fair market value on March 1, 1913, and prescribes the book entries by which the initial and annual depletion accounts are carried. *The Engineering and Mining Journal* of February 9, 1918, at page 301, gives these regulations in so far as they bear on these industries.

On February 4, 1918, the Department released Regulation No. 41, a pamphlet of some 42 pages relative to the Excess Profits act. These are most important and are the rules prepared by the advisory committee appointed by the Secretary of the Treasury, for the making a return under that act. There are few specific references to mines. However, Article 63 distinctly rules that in computing "paid in surplus" under Section 207 of the act, it "shall not cover mineral deposits or other properties discovered or developed after date of conveyance" (of the property). The Rulings, however, distinctly permit under certain conditions, the addition to surplus or undivided profits accounts of "amounts which have been expended in the past for the acquisition of plant" (see Article 64).

Mining and oil leases under these rulings are now considered Tangible property (Article 47) under Section 207 of the act. This is a distinct concession to the mining and oil interests and will result in many cases in relieving from the former unjust discrimination of the act, companies whose capital is based on leaseholds.

It is difficult to discuss these voluminous regulations without being very technical but there seems to be an honest effort made in them to relieve those cases where due to exceptional circumstances, the wording of the act would unduly discriminate against the taxpayer. Such exceptional circumstances may be undercapitalization, ultra-conservative accounting, sudden realization of earnings in one year of capital "unproductively invested through a period of years," i. e., earnings as a result of mineral finds, inability to properly allow for amortization, difficulty of satisfactorily determining invested capital, etc. In such, and similar cases, the taxpayer, by adopting the procedure prescribed, and with the consent of the Treasury Department, would pay the same percentage of tax on net-income as "representative corporations, partnerships and individuals engaged in a like or similar trade or business" (see Arts. 23, 24, 47, 52).

Generally speaking, it is believed that "Regulation No. 41" will tend to distribute the burden of the act more evenly, and is a distinct advance in placing the Excess Profits Tax law on a practical working basis.

Also, at a later date, our attorneys call attention to a ruling with reference to the Income Tax act as it applies to the professional man. Their statement follows:

An interesting ruling to professional men is Art. 35 of Regulation 41. We copy it:

"The net income which is derived from a trade or business having no invested capital or not more than a nominal capital, *including salaries, wages, fees or other compensation*, shall be determined for the taxable year by adding the total net income from all such sources." * * *

So if an engineer had a net income of \$20,000 of which \$10,000 was salary from a Company regularly employing him in *any capacity*, \$8,000 from engineering fees on the outside, and \$2,000 as the result of business investments, the 8% tax would attach to \$12,000 of the above, i. e., \$18,000 less \$6,000 deduction, and would not attach to the \$2,000, that not being received as salary, wages or fees.

If a professional man is earning less than \$6,000 the tax of 8% does not attach and only attaches on the excess over \$6,000.

In addition, the regular income taxes would apply on his total net income after taking allowed deductions.

OTHER SOCIETIES.

In the "Bulletin" of the Canadian Mining Institute for December, 1917, the Secretary of the Munitions Resources Commission of Canada comes out in a vigorous defence of the work that this commission has undertaken in co-operation with our own War Minerals Committee, in collecting all available data regarding prospective mineral deposits of the North American continent.

COMMUNICATIONS.

Aviation Examining Board.—From the office of the Aeronautical Officer of this Board, and signed by Captain M. H. Grace, Sig. R. C., A. S., comes the notice which follows, with a request to give it publicity.

The Aviation Section, Signal Reserve Corps, has immediate need for the following three classes of men:—

(a) Graduates of recognized technical schools with the degrees of civil engineer, mechanical engineer, electrical engineer, etc., and subsequent practical experience with gas engines. Men of this class, if otherwise acceptable, may be commissioned direct in the Signal Reserve Corps, without being sent to the Ground School.

(b) Men who are not graduates of technical schools, but who have had shop experience, which gives them a practical knowledge of gas engines, equivalent to that required of the graduates. These men may be commissioned after completing a course in one of the Ground Schools, established for the purpose.

(c) Administrative and executive experience in connection with shop work, or in connection with the manufacture or maintenance of machinery, not necessarily gas engines, especially in a shop employing approximately thirty mechanics, is valuable and should qualify men for commissions, after completing a course in the Ground School.

(d) Applications should be made to the President of the Aviation Examining Board, 104 Broad St., New York City, who will act on such applications immediately.

M. H. GRACE,

Capt., Sig. R. C., A. S.

Association of Eleventh Engineers.—This recently organized auxiliary of this regiment, and of which note was made last month, now sends us "*The Fighting Engineer*," with the date of January 1. This 16 page sheet purposes to stimulate an interest among the friends of the 11th Engineers, to provide smokes and other comforts for "The Boys" on the other side, to care for dependent families and to disseminate any information available as to the doings of the regiment and its individual members. Thus, a number of pages is given over to extracts from letters received from France.

In the printed roster of officers, Major Arthur S. Dwight is shown to be in command of the 1st Battalion, and Captain John D. Irving to be stationed with the Army Engineers' School.

War Committee of Technical Societies.—This Committee late in November notified its members that an office had been opened in the Park Row Building, and gave further notice that:

In order to be able to obtain a solution to problems which may be presented to us by the different departments of the Army and Navy in the shortest possible time, it will be necessary for us to have a list of

specialists in every department of the science and art to which these solutions may relate.

With this notice was issued "an incomplete list" comprising some 200 different subjects, under which specialists might be grouped as to knowledge of these subjects.

Subsequently, early in December, D. W. Brunton, Chairman of the War Committee of Technical Societies, came to the conclusion that the nine societies represented on this committee might themselves be of assistance in the preparation of such a list, and thereupon transmitted copies of the notice and schedule of subjects to these societies. The Secretary is able to report that from the office files a fairly comprehensive list of specialists was compiled and sent forward at the earliest moment possible.

National War Savings Committee.—The section on National Organizations of this committee, in a recently issued circular notice, solicits on behalf of the Secretary of the Treasury the support of the Society in the sale of War-Savings Stamps. One paragraph of this notice reads as follows:

Please urge every member of your association to become an agent for the sale of Stamps, regardless of how limited the extent; to get in touch with their local War-Savings Committee, post office or bank; purchase from them the initial supply of Stamps and replenish as sales warrant.

Further on, under the head of "Publicity" this paragraph appears:

Suggest to your members the tremendous publicity service they render in using inserts in pay envelopes; by wrapping up patriotic appeal folders in their merchandise packages; the prominent display in their windows and factories of the posters, etc., all of which publicity matter will be supplied by the State Directors or their local War-Savings Committee, on request.

In order to give members all needed information regarding the object and sale of the stamps, the "Handbook" issued by the National War-Savings Committee was sent to them under the same cover as the December BULLETIN.

U. S. Bureau of Mines.—The Society has been so closely in touch with this Bureau, that it will not be amiss to announce receipt of its "Seventh Annual Report" for the fiscal year closing with June 30, 1917. The summary of what has been accomplished in war service, and the long list of other achievements of the year are certainly worthy of note. Under the former are listed investigations of nitrate supply, raw materials for sulphuric acid, war gases and gas masks, nickel supply, manganese

supply, quicksilver, potash, petroleum products, coal and explosives.

American Committee of Engineers in London.—This Committee, through its Honorary Secretary, C. W. Purington, has very courteously kept this office informed as to its activities and has placed the name of the Society on its mailing list, to receive all the documents issued by it.

Furthermore, however, the American Committee of Engineers in London has requested the co-operation of this Society in certain of its projects. Thus, on December 19, Mr. Purington writes to request our aid in preparing a report on a plan to increase the production of grain in Eastern Siberia. And more recently a suggestion has come that the Society assist in another matter about which the Secretary is not yet prepared to speak.

War Excess Profits Tax.—In response to the request of the M. and M. Council, a communication has been received from Mr. J. F. Callbreath, Secretary of the American Mining Congress, enclosing a synopsis of such actions as have been taken in petitioning for an amendment to the war revenue act as it applies to the mining industry.

It seems that, after a number of conferences by delegates, representing largely western mining and allied interests, and after a hearing had been had before the Excess Profits Tax Advisory Committee, a general committee was appointed to prepare, and to present to the Internal Revenue Bureau, an amendment to the Excess Profits Tax Act. This was done on December 21, its preamble and the amendment itself reading as follows:

Be it enacted by the Senate and the House of Representatives of the United States of America in Congress assembled, that Section 207, of Title 2, of the Act Entitled, "An Act to provide the revenue to defray War expenses and for other purposes," approved October 3, 1917, be amended by the addition of a new sub-division "C" to Section 207, reading as follows:

"That in the case of mines, oil and gas wells, the invested capital, at the option of the taxpayer, shall be (1) the average pre-war net income capitalized at 8 per cent., and (2) paid in or earned surplus and undivided profits used or employed in the business since the pre-war period, exclusive of undivided profits earned during the taxable year; provided, that in the case of mines, oil and gas wells, having no pre-war net income, or acquired since the pre-war period, the 'invested capital,' at the option of the taxpayer, shall be (1) the net income for the year 1917 capitalized at 12 per cent., and (2) paid in or earned surplus and undivided profits used or employed in the business subsequent to the year 1917, exclusive of undivided profits earned during the taxable year."

This general committee, representing mining, oil and gas industries, has the following membership: J. J. Shea, Oklahoma; A. G. Dickson, Pennsylvania; Herbert Pope, Illinois; Ravenel MacBeth, Idaho; A. G. Mackenzie, Utah; Emmet D. Boyle, Nevada; T. A. Dines, Colorado; A. Scott Thompson, Oklahoma; Victor Rakowsky, Missouri; Paul Armitage, New York; Archibald Douglas, Arizona; Albert Burch, California.

ANNUAL MEETING.

AFTERNOON SESSION.

January 8, 1918.

The ninth annual meeting of the Society took place at the Engineers' Club, on January 8, 1918. The President, W. R. Ingalls, was in the chair and called the meeting to order at 2:30 p. m. In the absence of the Secretary, the President appointed the assistant secretary to act in his stead.

The members present follow: P. E. Barbour, J. P. Channing, A. E. Drucker, H. W. DuBois, W. L. Honnold, W. R. Ingalls, J. E. Johnson, Jr., E. B. Kirby, A. R. Ledoux, T. H. Leggett, W. Lindgren, R. Nichols, R. Peele, F. F. Sharpless, B. Stoughton, H. H. Webb and W. Y. Westervelt. On the roll-call, the acting secretary reported that 116 proxies, properly represented by attending members, had been submitted, and that as 17 members were present in person, there was a total representation of 133. The President thereupon declared that this constituted a quorum, in accordance with Article 6 of the Constitution, and that business might be transacted.

With reference to proxies, the presiding officer stated that it was still an open question whether, or not, an association of this kind was legally obliged to affix war tax stamps, but that a ruling was about to be obtained. He also referred to the war tax on dues, as it affected the Society, as being a matter which had not received a solution. Mr. Stoughton was able, however, to assure the meeting that a Government ruling had just arrived to the effect that the dues of the A. I. M. E., and by inference, those of similar organizations, were not taxable.

As the minutes of the previous meeting, held January 9, 1917, had been published in Bulletin No. 104, and as no corrections or amendments had been offered, the President declared that they would stand approved if no objections were made. There being no dissent, the minutes were allowed to stand as published.

The next business before the meeting, the report of the tellers on the election of officers, was deferred, to allow the tellers to complete the count.

The acting secretary was then called upon to read the report of the Secretary.

REPORT OF THE SECRETARY FOR 1917.

Membership.—During the year 1917 the following members were elected: C. J. Adami, F. C. Alsdorf, W. B. Boggs, C. C. Burger, J. A. Church, Jr., R. T. Cornell, W. J. Crook, A. C. Drucker, W. L. Honnold, J. E. Jones, A. R. Ledoux, W. J. Loring, A. C. Ludlum, L. W. Mayer, H. G. Moulton, F. W. O'Neil, E. Rickard, S. C. Sears, H. H. Stout, B. L. Thane, R. G. Wayland, C. M. Weld, H. A. Wentworth, and H. R. Van Wagenen, making a total of twenty-four.

The resignations of J. W. Malcolmson, F. I. Cairns, and C. H. Fulton have been accepted during the year. Subsequent to the closing of the books for 1917, and before December 31, the Secretary received also the resignations of E. H. Benjamin, E. V. d'Invilliers, and W. H. Shockley.

The Secretary reported to the Council, at the meeting of December 10, the names of three members who are in arrears for dues covering 1916 and 1917. The Secretary was instructed that, unless these dues are paid within a reasonable time, he should drop their names from the membership list.

The Society has lost two members through death this year: D. H. Browne and W. B. Clark.

Here follow the membership statistics since the organization of the Society:

One Year to	Elected	Died	Resigned	Dropped	Net Gain	Total Membership	Candidates			
							Before Council	Before Society	Applica- tions	Total
June 1, 1908—Charter members.....	31	0	1	0	30	115	..	..	20	20
Jan. 1, 1909.....	27	1	8	0	18	145	3	..	9	12
Jan. 1, 1910.....	31	2	3	2	24	163	8	5	6	19
Jan. 1, 1911.....	49	6	1	0	42	229	3	2	11	16
Jan. 1, 1912.....	13	2	6	0	5	234	0	1	2	3
Jan. 1, 1913.....	10	3	3	1	3	237	6	4	6	16
Jan. 1, 1914.....	34	3	7	0	24	261	2	0	10	12
Jan. 1, 1915.....	24	4	8	2	10	271	2	4	7	13
Jan. 1, 1916.....	22	6	1	4	11	282	3	0	3	6
Jan. 1, 1917.....	24	2	3	0	19	301	3	6	2	11
Totals	265	29	41	9	186	301	..	..	..	..

Membership in the Society is an honor and our members should call on those friends who are eligible to apply for membership. From time to time, members are advising the Secretary's office of engineers, whom they consider eligible and are willing to endorse. Upon receipt of such advices, the Secretary's office, after consultation with the Executive Committee, sends application blanks to the engineers in question, naming the member, or members, from whom the suggestion has been received. In most cases, such opportunities to apply for membership are gladly accepted, and applications are sent in, accompanied by letters of appreciation indicating the high esteem in which the Society is held.

Annual Medal.—The medal of the Society, awarded to Edward Payson Mathewson at the last annual meeting, was presented to him by your President at the annual meeting of the Canadian Mining Institute, in Montreal, Canada.

Council Meetings.—Meetings of the Council have been held in every month during the year with the exception of August.

Society Meetings.—A general meeting of the Society was held on April 19 to consider what the Society could and should do to assist the Government of the United States in the war. The series of resolutions adopted was published on page 60 of the bulletin.

Meetings were held on June 20 and July 25 to consider amending the by-laws where they refer to annual dues.

Section Meetings.—At the call of the President, the San Francisco and Philadelphia Sections held meetings in April to consider what could and should be done by the Society to assist the Government of the United States in the war. Resolutions were adopted by the sections and submitted at a general meeting of the Society held on April 19, in New York.

The New York Section held eight meetings during the year, and had an average attendance of thirty; fifty-one attended the November meeting.

Mining Law Revision.—The United States Bureau of Mines having accepted an invitation to co-operate in the drafting of a bill for the revision of the mining laws of the United States, and having requested the advice of the Society respecting the personnel of a committee for this purpose, the Council recommended to the Bureau of Mines the names of W. R. Ingalls, for chairman, J. Parke Channing, J. R. Finlay, John Hays Hammond, Dr. James Douglas, Hennen Jennings, and L. D. Ricketts.

The standing committee on Mining Law Revision was discontinued by the Council on February 8, 1917.

Standardization.—C. R. Corning, Chairman of the Committee on Standardization, reports that his committee "has been inactive in recent months waiting for the organization of the Engineering Standards Committee representing all of the societies."

Mine Welfare.—J. Parke Channing, Chairman of the Committee on Welfare of Mining and Metallurgical Employees, has called no meetings during the year.

At the solicitation of Mr. Samuel Gompers, and on the recommendation of Mr. L. A. Coolidge, Chairman of the Committee on Welfare Work of the Council of National Defense, the President appointed one member of the Society from each state in which the membership is represented, on this committee. This committee appears to be inactive, as no reports have been received.

Professional Training.—Arthur L. Walker, Chairman of the Committee on Professional Training, reports that other activities have interfered with any progress by his committee during the year.

Allies Aid Committee.—The Allies Aid Committee was appointed for the purpose of assisting the French government in opening and operating its coal mines. Under date of November 15, 1917, Mr. Corning, chairman of the committee, reported, "for the present at least, there is nothing which this committee can do which would be to the advantage of the Society which we represent, or of value to the Allies, and we suggest that the Committee be discontinued." ". . . this communication may be considered as the resignation of the committee." This letter of resignation further states that the committee will be very glad to again serve the Society at any time if the necessity arises. The resignation of the committee was accepted.

New York Office.—It has been the desire of your Council to offer special facilities to out-of-town members in the form of office accommodations, and a downtown library. Most of our out-of-town members, however, have New York connections and therefore have no occasion to accept any office accommodations which might be offered by the Council. But there is a real need for a downtown technical library and there will be no difficulty in securing such a library if sufficient office space can be secured for housing it. As the Society is not in a financial position to

expand its office space, the Secretary suggests that two or three engineers consider renting office space adjacent to the office of the Society; such an arrangement will be of mutual benefit. The stenographer of the Society will always be at the service of engineers who desire to avail themselves of this privilege, and thereby dividing the expense between them and the Society. Constant attendance of this kind will assure the proper receipt of messages and the forwarding of mail. An outer office might be arranged as a library and conference-room.

Secretarial Work.—It probably is hard for members to appreciate that the secretarial work requires very close attention and considerable time. As one of the former secretaries expressed it, "it requires all of the time one will give to it." The secretaryship is an honor, without remuneration, conferred upon one of its members, and therefore the Secretary does not necessarily devote his entire time and attention to the work. During 1916 and the first half of 1917, your President gave considerable of his time to the secretarial work.

With the declaration of war, it was deemed proper that the Society be prepared to respond to any, and all, calls made upon it by the Government. The Council took immediate action and appointed Mr. Edward B. Sturgis Assistant Secretary at a salary, to look after all of the details. The Secretary has invited the Assistant Secretary to submit a report to you, as he has taken entire charge of all the detailed work in regard to Government service, and of the editing and publishing of the bulletin.

Dues.—For the purpose of classifying the membership, and of preparing in every way to furnish the Government aid, if requested, it was necessary to appoint an assistant secretary on a salary basis; to meet this increased operating expense, the by-laws were amended whereby the dues for the period of the war, and for one year thereafter, were increased to \$20 annually, payable in two installments of \$10 each, on January 1 and July 1. The vote of the Society on this amendment shows the patriotic spirit of its members; of the 156 votes allowed, 129 were in favor of increasing the dues and only 27 opposed.

Honor Roll.—It is with with great pleasure and pride that the Secretary is able to report the names of the following members who have joined the United States or Allied forces:

Percy E. Barbour, Captain, Reserve List, N. G., N. Y.
 Edwin S. Berry, Captain of Engineers, U. S. R.
 Alfred H. Brooks, Major of Engineers, U. S. A.
 Reginald W. Brock, Major in Canadian forces.

Gelasio Caetani, Capt. 1st Reg. of Engineers, Italian Army.
 Welton J. Crook, Officers' Reserve Corps.
 W. B. Devereux, Jr., Captain of Aeronautics, U. S. A.
 A. S. Dwight, Major, 11th Engineers (Ry.), U. S. A.
 William Hague, First Lieutenant of Engineers, U. S. R.
 John D. Irving, Captain, 11th Engineers (Ry.), U. S. A.
 C. H. Macnutt, Lieutenant of Engineers in Canadian forces.
 Charles W. McMeekin, Major of Engineers, U. S. R.
 Seeley W. Mudd, Major of Engineers, U. S. R.
 O. B. Perry, Major, 27th Engineers, N. A.
 Joseph Hyde Pratt, Lt. Colonel, 105th Engineers, N. A.
 A. L. Queneau, late of the French army.

Due to changes, it has been difficult to obtain the correct official titles of members in service; the Secretary will appreciate being advised promptly of any errors.

Many of our members are serving our Government in one capacity or another in connection with war matters. The Secretary's office has been unable to secure a complete list, although members were invited to fill out blanks, which were mailed to them with the November bulletin. Following is a partial list:

Lawrence Addicks, Member, U. S. Naval Consulting Board.
 Will L. Clark, Federal Fuel Administrator, Arizona.
 Benedict Crowell, Major of Ord.; Asst. Secretary of War.
 J. S. Douglas, Maj. and Dir., Warehouses, American Red Cross.
 Baird Halberstadt, Fed. Fuel Administrator, Schuylkill Co., Pa.
 W. L. Honnold, Am. Dir., Com. for Relief in Belgium.
 Herbert C. Hoover, U. S. Food Administrator.
 D. C. Jackling, Powder Plants and Mfg., War Department.
 Woolsey McA. Johnson, Trade Expert, War Trade Board.
 Donald M. Liddell, Chief Engineer, War Credits Board.
 C. W. Merrill, Div. of Chemicals, U. S. Food Administration.
 H. G. Moulton, Engineer, War Industries Board.
 M. L. Requa, Org. and Policy, U. S. Food Administration.
 Edgar Rickard, U. S. Food Administration.
 W. L. Saunders, Chairman, U. S. Naval Consulting Board.
 Millard K. Shaler, Hon. Sec., Com. for Relief in Belgium.
 S. C. Thomson, War Export Board.
 Arthur L. Walker, Con. Met. to Chief of Ordnance, U. S. A.
 William Young Westervelt, Chmn. War Minerals Committee.
 Pope Yeatman, Con. Engineer, War Industries Board.

December 31, 1917.

LOUIS D. HUNTOON,
Secretary.

MINING AND METALLURGICAL SOCIETY OF AMERICA

On the completion of the Secretary's report, Dr. Ledoux stated that, in connection with the military Honor Roll, he felt some doubt as to the advisability of making public the rank and commands of the members listed, and expressed the belief that in doing so, the Society was contravening the wishes of the War Department. The President, after some little discussion, instructed the acting secretary to make the necessary inquiries regarding the subject.

Thereupon on motion, properly seconded and carried, the Secretary's report was accepted.

The President then announced that the report of the Treasurer was next in the order of business:

REPORT OF TREASURER FOR 1917.

I beg to submit the following report:

RECEIPTS.

Cash in bank January 1, 1917		\$585.70
Annual Dues 1916	\$90.00	
Annual Dues 1917	2,855.00	
Annual Dues 1918	40.00	
	<hr/>	2,985.00
Sale of Bound Volumes, back numbers	\$6.00	
Sale of Bound Volumes, 1916.....	154.00	
Sale of Bound Volumes, 1917.....	10.50	
	<hr/>	170.50
Interest		141.97
Sale of Society Badge		5.00
Special Meetings		207.82
Subscriptions to Bulletin		6.00
Annual Meeting; Dinner		67.60
Sale of 2 bonds, C. M. & St. Paul R. R.....	\$1,748.00	
Sale of 1 bond, Penn. R. R.....	933.88	
	<hr/>	2,681.88
		<hr/>
		\$6,851.47

EXPENDITURES.

New York Office Expenses and Asst. Sec.....	\$1,974.00	
Office Rent and Stenographer.....	1,550.00	
Office Furniture and Fixtures.....	50.00	
	<hr/>	\$3,574.09
Exchange		1.06
Annual Medal, 1917	\$138.85	
Annual Medal, 1918	21.78	
	<hr/>	160.63
Annual Meeting, 1917	\$102.60	
Annual Meeting, 1918	40.98	
	<hr/>	143.58
Special Meetings		277.20
Binding Volumes, 1916	\$185.41	
Binding Volumes, 1911-12-13	3.25	
	<hr/>	188.66

MINING AND METALLURGICAL SOCIETY OF AMERICA

Mining Law Revision	58.10
Bulletins	\$868.70
Copies of Constitution and By-laws.....	110.36
	<hr/>
	979.06
New Members	63.49
Local Section, Expenses	\$21.23
Local Section, Loan	100.00
	<hr/>
	121.23
Belgium Relief	50.15
War Minerals Committee, Donation	50.00
Three Tiffany Badges	15.00
Cash in Bank January 1, 1918	1,169.22
	<hr/>
	\$6,851.47

Assets and Liabilities on January 1, 1918, are as follows:

ASSETS.

Cash in Bank	\$1,169.22
Dues Payable, 1916	\$30.00
Dues Payable, 1917	65.00
	<hr/>
	95.00
Loan to Local Section	100.00
Office Furniture and Fixtures	50.00
1 Bond N. Y. City 4½ per cent. \$150.00.....	147.75
2 Society Badges	10.00
Interest accrued	15.00
	<hr/>
	\$1,586.97

LIABILITIES.

Life Membership	\$150.00
Payment in advance for dues, 1918	40.00
Payment in advance for bound volumes, 1917	12.00
Estimate for cost of December bulletin.....	\$75.00
Estimate of unpaid bills	50.00
	<hr/>
	125.00
	<hr/>
	\$327.00

Assets and Liabilities since 1911 are as follows:

	Assets.	Liabilities.	Difference.
1911	\$1,829.41	\$72.50	\$1,756.91
1912	2,754.91	148.00	2,606.91
1913	3,147.23	132.00	3,015.23
1914	3,554.07	196.00	3,358.07
1915	3,961.50	705.47	3,256.03
1916	3,868.45	310.00	3,558.45
1917	1,586.97	327.00	1,259.97

Income and Expense Account since 1908 is as follows:

	Income.	Expenses.	Surplus.	Deficit.
1908	\$945.46	\$436.96	\$508.50
1909	1,605.75	1,068.99	536.76
1910	1,880.49	1,543.97	336.52

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1911	1,871.43	1,508.80	362.63
1912	2,742.06	2,020.86	721.20
1913	2,598.00	2,404.79	193.21
1914	3,506.25	3,072.39	433.86	.....
1915	3,444.10	2,893.92	550.18	.....
1916	3,223.72	3,060.17	163.55	.....
1917	3,583.89	5,582.25	.....	\$1,998.36

The Council authorized the Treasurer to have the accounts audited and final entries made in the ledger by Mr. Charles T. Howell. Following is copy of Mr. Howell's letter:

December 18, 1917.

To the President and Councillors of the
Mining and Metallurgical Society of America,
New York City.

Gentlemen:

Acting under appointment by the council of the Society I have audited the accounts of the Mining and Metallurgical Society of America for the years 1916 and 1917, and hereby certify that, to the best of my knowledge and belief, the statement of receipts and disbursements is correctly set forth and that the balance sheet presents the true financial condition of the Society.

Respectfully,

CHAS. T. HOWELL,
Auditor.

The above statement covers receipts and expenditures for the year 1917 only. Referring to the 1916 statement we find the following:

Jan. 1, 1917, Dues in arrears for 1916.....	\$120.00	
Jan. 1, 1918, Dues in arrears for 1916.....	30.00	
Dues collected for 1916		\$90.00
Jan. 1, 1917, Credit on 1916 bound volumes.....	\$83.50	
Jan. 1, 1918, Received for 1916 bound volumes....	154.00	
Total receipts	\$237.50	
Cost of bound volumes	185.41	
Net profit on bound volumes.....		\$52.09
Expense of special meetings of the Society.....	\$277.20	
Receipts from special meetings of Society.....	207.82	
Net cost of special meetings of the Society.....		\$69.38
Jan. 1, 1917, Investments of the Society:		
C. M. & St. Paul Bonds.....	\$1,990.00	
Penn. R. R. Bonds	980.00	
		\$2,970.00
Jan. 1, 1918, Sale of Investments of Society:		
C. M. & St. Paul Bonds	\$1,748.00	
Penn. R. R. Bonds	933.88	
		2,681.88
Net loss on sale of bonds		\$288.12

MINING AND METALLURGICAL SOCIETY OF AMERICA

Following is a detailed statement of the dues account for 1917:

282 members Jan. 1, 1917, at \$10.00.....	\$2,820.00	
18 members elected in 1917 at \$10.00.....	180.00	
6 members elected in 1917 at 5.00.....	30.00	
<hr/>		
306 Membership dues to be accounted for		\$3,030.00
Total receipts for dues for 1917	\$2,855.00	
Dues remitted, eight members	80.00	
Resignation of one member (Dec., 1916).....	10.00	
Death of one member	10.00	
Dues in arrears for 1917	65.00	
Life members, one	10.00	
<hr/>		\$3,030.00

The Treasurer's report for the year shows a deficit of \$1,-998.36. As explained in report of the Secretary this deficit is due to the employment of an assistant secretary, necessitated by the resolutions adopted by the Society at its meeting held on April 19, 1917. It will be necessary during the period of the war to employ an assistant secretary to handle the details of the Society in connection with the services the Society is rendering the Government. The dues were therefore increased to meet this extraordinary expense and this increase will be in force for one year after the war to again place to the Society's credit investments which it was necessary to sell during 1917.

December 31, 1917.

LOUIS D. HUNTOON,
Treasurer.

It was moved, duly seconded and carried that the Treasurer's report be accepted.

The President then called for the report of the Assistant Secretary.

REPORT OF ASSISTANT SECRETARY.

At the request of the Secretary, I beg to submit report on certain activities of the Society which, since July 1 last, have been to a large degree the particular province of the Assistant Secretary.

Government War Service.

Register of Engineers.—The response to the President's circular letter of June 2, which contained Director Manning's "service classification," was not perhaps as hearty as was to have been expected, and this in spite of the fact that many sup-

plementary letters urging replies were sent to individual members, and that notices have continually appeared in the *BULLETIN*. Nevertheless, some forty-five members expressed their willingness to serve the Government, and many without compensation of any kind.

The Bureau of Mines in Washington has been in continual touch with the situation, and in two cases at least the Society has been of real and substantial help. Arthur L. Walker was appointed, almost immediately after volunteering, Chief Metallurgist to General Crozier, Chief of Ordnance; and M. K. Shaler, volunteering by cable from England, was at once called upon to obtain certain confidential information for the Bureau of Mines. In this and in other matters, Mr. Shaler has been doing sterling work for the cause.

It may be supposed that certain other appointments by the authorities in Washington have been due, in the first instance, to the activities of the Society, materially helped by the diligence of your President. W. Y. Westervelt, Chairman of the War Minerals Committee, is the representative of this Society on that committee—appointed by request. Also, it may be noted that all four of the experts investigating southern manganese deposits for the Government are members of the Society.

It is possibly not beyond reason to believe that the little which has been accomplished is worth the time and trouble expended.

Subject Classification.—Here again, it may be that the progress made is not as great as it should be. About thirty-one members have been listed as to their "special knowledge." This classification, however, has not been confined to the membership of the Society, and as it was permissible to go outside for data, in this way a total of 115 engineers have been classified under 125 subject headings and sub-headings.

This classification has proved of some help to the Bureau of Mines and to the War Minerals Committee, and has been of recent use in filling certain demands made by the War Committee of Technical Societies. Specialists for a list of some 200 subjects were requested and, from data in the office of the Society, it was possible to supply some information in matters not strictly allied to the mining and metallurgical industries.

Mention should at this point be made that, although the M. and M. Society was among the first to perceive the need of listing engineers, and specifically as a war measure, many such classifications have been undertaken. Thus, the Bureau of Mines

has made a quite comprehensive census of mining engineers, metallurgists and chemists, the Public Service Reserve under the auspices of the Department of Labor is making a general list, the Intercollegiate Bureau has accomplished a good deal in supplying younger college men, and other scientific societies and clubs have undertaken similar registrations. Finally, the American Engineering Service, although not yet well under way, may eventually bring together much data respecting the engineers of the nation. All of this is noted, to call attention to the intricacy of the situation regarding engineers' classification, and to point out that, under the circumstances, each individual society, or committee, may hope to do only a small part in this work.

Register of Mineral Properties.—Under this heading, information regarding prospective, undeveloped and idle mining properties was called for. Such data as was collected was promptly passed on both to Mr. Manning and to the War Minerals Committee. The mineral deposits listed were largely pyrites.

Honor Roll.—The Secretary's report gives the rolls of honor of the Society in toto to date, in so far as the facts are available. It may not be amiss, however, to consider here some of the individual members who are serving the Government. There is no particular need to mention Hoover, who belongs to the world. But there are also his assistants, Rickard, Requa, and Merrill. Then there is Dwight, one of the first to go to France; Crowell, first a major, and now Assistant Secretary of War; and many others, some of whom have been named above.

Committees for War.—Mention has already been made of a number of committees with which the Society has been in some manner associated, or at least in touch. The War Committee of Technical Societies and the American Engineering Service are offsprings of the Engineering Council, and the personnel of each includes representatives of the M. and M. Society. To the former, your President appointed Messrs. Corning and Stone, and the Assistant Secretary to the latter. The War Committee of Technical Societies has recently become especially active in its endeavor to stimulate the inventive genius of the scientific mind.

The Society within the past two months has been in correspondence with the American Committee of Engineers in London with the view of co-operating to some extent. This committee was organized for the same general purposes as was the War Committee of Technical Societies in this country, and in-

cludes the names of members of the Society, with Shaler among them.

As noted above, as in the case of the War Minerals Committee, correspondence has been had with some of the Federal war committees, but this in general has been only more or less superficial.

Regulations for Explosives.—At the time the bill to regulate the manufacture and distribution of explosives was before the House of Representatives, your President appeared at a hearing of the Committee on Mines and Mining to make certain recommendations, and, in accordance with a resolution passed, to offer the services of the Society to assist in the administration of the law, when and if enacted. This bill was approved on October 6 last and although the Society has been at all times in touch with the situation, it has not reached the point of active participation in carrying out the law.

War Taxation of Mines.—Reference is here made particularly to the hoped-for revision of the war revenue bill as it affects mines and mining. One of our Councillors, Albert Burch, has been diligent in encouraging interest in the need of such revision, and very recently the Council called on Hennen Jennings to represent the Society in Washington in this matter. Also, the Secretary has been in communication with the American Mining Congress which is actively working for a change in the law.

Pan American Scientific Congress.

It will be remembered that, at the request of the Secretary of State, the Society was invited to be represented at the Second Pan American Scientific Congress, and report has already been made as to the proceedings and of the part which our delegates took in them. Now, for the past two months, these proceedings have been appearing in printed form, and the Society may, it is felt, be congratulated upon the large number of papers contributed by its members. Seven of eleven volumes have been published and include the writings of eighteen members, the majority naturally falling to the volume devoted to mining and associated industries.

International Health Bureau.

This Bureau, which is a part of the Rockefeller Foundation, through one of its administrative staff, has requested advice as to the best method to bring before the mining profession the need of combating the hook-worm disease. The Secretary has

had a number of conferences, and it is among the probabilities that the Society, through its Council, will be asked to give active aid in a campaign of education regarding this disease.

Employment Bureau.

Actually, this heading signifies much more than it is intended to imply, because it is undoubtedly the opinion of the Council, and probably that of the membership at large, that the Society should not actively interest itself in the filling of vacant positions, or to attempt to find positions for such members as may be idle. On the other hand, the Council in September, authorized the Secretary to announce to the membership that assistance of this kind, if possible, will be given as the occasions arise. One notice of a position vacant has been issued, and other work similar in character has been undertaken by direct communication.

EDWARD B. STURGIS,
Assistant Secretary.

The report of the Assistant Secretary having been accepted in proper manner, the chair requested the acting secretary to read certain proposed amendments to the by-laws which had been submitted by the Executive Committee to the Council, and which, with a few minor changes, had received the approval of the Council.

(The report of the Executive Committee, including the proposed amendments to the by-laws, appeared on page 272 of the December issue of the BULLETIN, and is therefore not repeated.)

At this point, the report of the tellers, H. H. Knox and A. C. Ludlum, was submitted to the President and read by the acting secretary:

January 8, 1918.

Mr. W. R. Ingalls, President,
Mining and Metallurgical Society of America,
115 Broadway, New York.

Dear Sir:—

The undersigned tellers for the election of officers and councillors at the Annual Meeting, on January 8, 1918, beg to report:

Ballots issued November 8, 1917.

Total members entitled to vote	290
Total returns	183
Ballot returned by post office	1
Ballots returned without signature	2
	3
	180

MINING AND METALLURGICAL SOCIETY OF AMERICA

PRESIDENT.

W. R. Ingalls	116
Waldemar Lindgren	63
Total vote	179
Not voting	1
	180

VICE-PRESIDENT.

J. Parke Channing	118
A. H. Rogers	59
Total vote	177
Not voting	3
	180

SECRETARY.

Louis D. Huntoon	153
Not voting	27
	180

COUNCILLOR, DISTRICTS

1-2-3-4.

(Short Term.)

J. R. Finlay	51
Fred Hellman	27
J. H. Janeway	22
Thomas H. Leggett	32
R. M. Raymond	37
	169

COUNCILLORS, DISTRICT

1-2-3-4.

(Two to be elected; long term.)

J. V. N. Dorr	59
H. H. Knox	23
F. F. Sharpless	52
George C. Stone	59
Arthur L. Walker	27
William Young Westervelt....	21
Pope Yeatman	66
	307

307

COUNCILLOR, DISTRICT 8.

Charles H. Chase	23
Walter Fitch	26
Robert C. Gemmell	39
Orvil Robert Whitaker.....	26
Charles Walter Whitley.....	14
	128

COUNCILLOR, DISTRICTS

9-10.

F. W. Bradley	74
Charles Butters	17
John F. Newsom	11
W. H. Shockley	10
F. L. Sizer	7
George W. Starr	13
	132

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SUMMARY OF VOTES FOR COUNCILLORS.

Districts 1-2-3-4 (one councillor)	169
Districts 1-2-3-4 (two councillors)	307
District 8	128
Districts 9-10	132
Blank or faulty votes	164

180 members voting x 5 equal to 900

In the case of districts 1-2-3-4 it has been found that J. V. N. Dorr and George C. Stone have each received 59 votes for the position of the second Councillor in this district.

Respectfully submitted,

H. H. KNOX.
A. C. LUDLUM.

As the tellers announced a tie vote between J. V. N. Dorr and George C. Stone, for councillor, the President, as required by the by-laws, cast the deciding vote in favor of Mr. Dorr, and thereupon declared that Mr. Dorr, together with the officers and other councillors, as reported by the tellers, elected.

W. R. Ingalls, the President, having been assured that there was no further business to be presented, made his report to the Society in the following words:

PRESIDENTIAL ADDRESS.

Fellow members, this Society having been organized in April, 1908, with this annual meeting we are about concluding our 10th year. During this time the Society has prospered and has been unremitting in its activity. It was organized by 115 charter members. Of these about 16 have since died. There has been a loss among new members, both by death and by resignation, but nevertheless there has not been a year during which there has failed to be an increase in the membership, and at present the roll numbers well over 300. The finances of the Society have been in a superb condition right along until this year of war, when we boldly sacrificed our surplus in order to do our bit; but the loyalty of our membership may be relied upon to restore the treasury to its former condition. The meetings of the New York Section have never been so well attended as they have been this year, nor have membership dues been paid so promptly and in general may I say that at no previous time has there been exhibited so much interest in the work and welfare. An organization that can look upon a record of this sort does not need to be introspective, seeking reasons for existence. Let it be simply inferred that it exists owing to its being useful and satisfactory.

This answers a suggestion that is sometimes heard to the effect that the Society, having reformed the Institute, has served its purpose and ought therefore to disappear. If there were any merit in that suggestion it is obvious that the Society would be unable to point to the record that it has. But the premises upon which any such suggestion is based are quite incorrect. The Society, like Topsy, "just grewed." It was organized out of the spontaneously expressed feeling that there was need for a strictly professional society, which the Institute was not, and it was considered could not be. There was no idea of creating an undemocratic organization. On the contrary, the constitution and by-laws were an embodiment of the principles of democracy in their most modern form. There was no limitation

of the membership to men who could point to a certain ancestry or could exhibit a college diploma, but simply was it stipulated that the qualifications for membership should be good character, honest reputation, and a record of five years in a professional position of responsibility. Graduates of Columbia University and of the stopes of Butte could comply equally with those requirements and that is all there was about it.

Nor was there any idea of reforming the Institute. Several years later the Institute did indeed experience some changes, but the contributory causes were quite different from those that produced the Society and while it is true that the leaders in the culminating revolutionary movement in the Institute were members of the Society the coincidence was purely accidental. The Society had nothing to do with it. Those of its members, who were also members of the Institute, and acting as such effected the change, effaced themselves immediately. In its new life the Institute borrowed liberally from what the Society had instituted in its own affairs, especially the system of local sections, frequent meetings and fraternization generally, and sometimes there have perhaps been thoughts that it was overlapping us; but that has not been so in anything more than some incidental and immaterial ways. There is really no rivalry between the Society and the Institute. Nearly all the members of the Society are members of the Institute. The ideas are different. The Institute embraces some thousands, who are simply *interested* in mining and its prime function is the dissemination of knowledge. The Society comprises some hundreds of men who are professionally engaged in mining, who have attained a distinct standing in their profession and who have combined for effectiveness in advancing professional interests and promoting industrial interests in what may be characterized as the economic and political ways as distinguished from the purely technological. This program is manifestly possible only by an organization like the Society that possesses a compact membership of uniform professional character and adequate means for determining the consensus of opinion. A large, heterogeneous body can neither expect the approach to unanimity of opinion that results from homogeneity, nor can it effectively conduct discussions and arrive at a consensus of opinion, and in default of such it can not act. Proposals to act eventuate usually in doing nothing. The Society has acted in many public and professional matters, and so well designed has been its machinery for registering opinion and so conservative has been the administration of its council that there has never been any internal dispute respecting the

advisability or propriety of what it has done as an organization. If the Society did not already exist for this purpose it would have been invented anew, or else let our profession go leaderless.

The work that has been done by the Society, the things that it has accomplished or toward the accomplishment of which it has contributed, I need not repeat to you, for they are recorded in our proceedings. But I want to refer to two things that seem to me to be very important and thoroughly illustrative of what we are aiming to do, reflecting one of the main purposes of the existence of the Society.

About eight years ago attention began to be directed toward increasing the safety in metalliferous mining. One of the first to institute this propaganda, if not the first, was the committee that eventually became an official committee of the U. S. Bureau of Mines. Its studies were embodied in Bulletin No. 75 of the Bureau, which includes among other matter a proposed safety code. That bulletin is now a standard treatise on its subject and its proposed code has been substantially written into the laws of several mining states, and will be by other states. It has been, moreover, adopted as the basis of their rules and regulations by important mining companies and has been of general educational service. Now, I doubt if the work of that committee would have been possible, anyway it would not have been so good, if it had not been for the co-operation of this Society, which devoted its meetings of an entire winter to discussion and criticism of tentative proposals. When the final report of the committee appeared, the Society, like the industry at large, was able unreservedly to agree to it.

Again, the matter of reforming the mining laws, as relating to the acquisition and holding of public lands that are valuable for mineral, has been under discussion for years and years. Our Society eventually took the lead in this. The question is one of broad economic and political concern. It affects everybody interested in mining, especially in the West. Therefore it was something calling for action not by any single organization but by the industry as a whole. But how? It was necessary for some one to take the lead, so this Society stepped out in front, calling to all of the state mining associations to follow. They did so cheerfully. Finally we voted on a questionnaire in order to determine the consensus of our opinion and we submitted the same questionnaire to the state mining associations, which likewise voted upon it. Thus our Society became a central agency, and served a very useful and proper purpose.

The matter of mining law revision finally reached the stage

in which a bill for introduction in Congress is to be drafted at the request of the Committee on Mines and Mining of the House of Representatives by the Bureau of Mines, which asked this Society to recommend a committee for the purpose. That committee was appointed and was engaged on the work when the war began and it became necessary to postpone this work in order to devote attention to more urgent things.

Immediately after the declaration of war by the United States, meetings of all sections of the Society—New York, San Francisco and Philadelphia—were called to put us on record in support of our country and to consider how we might do our bit. There were never previously any meetings so well attended or so enthusiastic. A series of patriotic resolutions was adopted, including an authorization to the Council and executive officers to go the limit in spending the surplus in our treasury in rendering any aid that we might. But this was not enough. In order to carry out the purpose of the members as expressed in these meetings and give effective aid to the country it was necessary for us to employ a paid secretary and the only way of enabling that to be done was to raise the annual dues of our members from \$10 to \$20. An amendment to the by-laws was passed by regular procedure, making such an increase for the period of the war and one year thereafter, with only a few dissenting votes.

Now, what have we done? Let me say immediately that naturally we have not done many of the things that last April we contemplated, while on the other hand we have done important things that then we did not think of. Some of the latter I am unfortunately unable to describe except in a general way. Our most important work may not be recorded, anyway not now.

One of our first steps was to issue a call to our members to volunteer their services for any professional work that the government might require. The response to this was immediate and general. As soon as offers were received they were transmitted to Washington, and in not a few cases requests for examination of mineral deposits and other service were received and the work was done. In some instances we were instrumental in associating certain of our members with departments in Washington as regular professional advisers. Mr. Westervelt became chairman of the War Minerals Committee, representing jointly this Society and the Institute on that committee, which certainly has done highly important work in promoting the domestic sup-

plies of manganese ore and pyrites, two minerals in which the United States was deficient.

In the early days of the war, the Society, like many other organizations, was greatly impressed with the idea of the benefit of classification of engineers according to the things they could best do. The Society undertook such a classification, pursuing a different plan from what anybody else had instituted. Our idea was to get our members and everybody else to report the special things in which they had been engaged; the special things in which they were expert. If occasion should arise when it was necessary to find the man who had had actual experience in extracting potash from feldspar, it would not help at all to turn to the catalog classification of "chemical engineering." We should be able to turn to the classification of "Potash, extraction from feldspar," and under that head find the man or men who have done it, or who knew about it. We have not got very far with this kind of indexing, although we are still carrying it on. Also, we are co-operating with the other societies and councils in their work of the same kind. I think that this is a valuable work, but I think that it will be of more value in time of peace, and to engineers and industrialists generally than it is to the Government in time of war. It is my feeling, which of course is only my personal expression of opinion, that the urgency of classification is not so great as nine months ago we thought it was. Speaking from my own experience during recent months, which has comprised several special investigations, we have been able, from our own professional knowledge and acquaintance, to find the specialists in minute things that we needed.

I think that the most important work that has been done by this Society has been its actions as unofficial agents of departments of the Government, which have requested us to take up several matters of investigation and doing things as a means of evading the meshes of red tape. We are able to act as private consulting engineers, so to speak, to bureaus in Washington.

We should not, of course, have been able to render any of this assistance unless we had added to our force a secretary who would be in our office all the time, and we should not have been able to do that unless we had raised our dues. When members receive their bills this month it will come right home to them that the work that we are now doing is costing more money. I am sure, however, that nearly all of our members will consider that this is one of their ways of doing their bit. It is gratifying to be able to report that the resignations on account of the increase in dues have been less than ten.

One of our members, Mr. Millard K. Shaler, has been doing most useful work as representative abroad, for which he volunteered his services upon the first call. It has been a satisfaction and a strength to Mr. Shaler in his conversations with both the British and the French governments to know that the engineers of the United States, represented by this organization, were supporting him, and we have endeavored to make our support effective.

The names of our members who have entered military service, and who have entered into regular government employment otherwise, are published frequently in the Honor Roll in our BULLETIN. Some of our members are filling eminent positions. Mr. Crowell is Assistant Secretary of War, Mr. Hoover is the Federal Food Administrator, and Mr. Saunders is Chairman of the Naval Consulting Board. Some of our members who have entered the army are already in France. It is my sad duty to report that one of our members is the first engineer officer to give everything in France. In the service of his country, Lieut. William Hague died of pneumonia in France on January 2, 1918. Lieutenant Hague attended the Officers' Training Camp in Plattsburgh in September, 1916. After receiving his commission, he was called to the Engineers' Training Camp at Vancouver Barracks, Oregon, last spring. Later he was transferred to the camp at American Lakes, near Tacoma, and from there to Charlotteville, N. C. He was ordered with his regiment to Mineola last November, and soon afterward left for France. His family received news of his safe arrival abroad December 15 last. Since then a cable of Christmas greetings to his family was the only word received.

I wish that our members living outside of New York and San Francisco were able to attend our meetings more frequently. Naturally, they do not get the same benefit from the Society that do we who live right here, and are able to get together to talk things over about every month. We try to keep members elsewhere in full touch with what is going on through the medium of the BULLETIN. That is the best we can do. We have tried also to give them material advantages. The Society has a properly equipped office in a well-known building near the corner of Broadway and Wall Street. Any member of the Society coming to New York is free to make the office of the Society his business headquarters while here, where he can have the use of stenographer and telephone, and have his mail attended to. We are trying to accumulate in that office a modest technical library for ready reference, not with any idea of rivaling the

great library in West 39th Street, but simply to have some commonly needed books readily available downtown. The Secretary is undertaking to assist managers in finding engineers whom they want, and to assist engineers in the making of new arrangements. These are some practical things that we are slowly developing. There is a growing appreciation of this, and also of the honor that attaches to membership in the Society, wherein membership implies a distinct professional standing, recognition of which is valuable.

Thus may we hope to increase in strength as an active militant body, aiming to look out for professional welfare, contributing to the advancement of the interests of our industry, aiding our government, and enhancing professional prestige by doing these things.

The meeting adjourned at 4:30 p. m.

EDWARD B. STURGIS,
Acting Secretary.

EVENING SESSION.

At about 7 p. m., 38 members and their guests were called together for dinner in the banquet room of the Engineers' Club. The following members attended the dinner: S. H. Ball, P. E. Barbour, G. P. Bartholomew, E. T. Connor, C. V. Drew, A. E. Drucker, H. W. DuBois, E. L. Dufourcq, J. B. Farish, H. W. Hardinge, J. P. Hutchins, W. R. Ingalls, J. E. Johnson, Jr., H. H. Knox, W. Lindgren, F. W. O'Neil, R. Peele, F. E. Pierce, J. H. Polhemus, R. M. Raymond, A. H. Rogers, W. L. Saunders, F. F. Sharpless, G. C. Stone, W. Symmes, G. D. Van Arsdale, A. L. Walker, C. M. Weld, H. A. Wentworth, R. B. Williams and H. C. Wilmot. The guests were: F. W. Draper, J. M. Elmer, C. Janin, H. C. Parmelee, E. B. Sturgis, W. G. Swart and L. Whiting. S. Lefevre, and A. C. Ludlum joined the meeting after the dinner.

At 8:15, the President, Mr. W. R. Ingalls called the meeting to order.

The President.—The meeting will please come to order. This is our tenth annual meeting. I have pleasure, in the first place, in announcing that the Gold Medal of the Society for 1918 has been awarded for "Distinguished Service in the Administration of Mines" to our fellow-member, Mr. Pope Yeatman. (Applause). I have the further pleasure in announcing that the Council of the Society by a unanimous vote, which is required in

accordance with the by-laws, has elected to honorary membership, Prof. James F. Kemp, (Applause), and Dr. James Douglas (Applause). If any member has any further business that he desires to introduce at this annual meeting, the opportunity still exists.

Mr. Rogers.—Mr. President, I think we all as professional men have felt the injustice of the provision in the War Revenue Bill that was passed last fall, in assessing on earned incomes an extra tax. The American Bar Association a few days ago sent the following to Congress:

The president and all members of executive committee of American Bar Association respectfully call attention of Congress to the unfairness of the supertax on professional incomes imposed by section 209 of war revenue act approved Oct. 3, 1917.

Much might be said in favor of a lower income tax on incomes from professions than upon incomes from investments. But there has been no disposition on part of the American bar to object to the payment of the same income tax as is paid by others, or, indeed, to any plan of taxation under which lawyers are called upon to bear their fair share of the burdens.

It seems, however, very unjust that incomes from the practice of any profession, whether legal, medical, or otherwise, which are the result of personal effort, and which provide not only for the current support of the professional man, but also the saving for his old age, should be subject to a heavy supertax, so that the professional man who works for his income is in a much worse position than the idle man receiving his income from invested wealth. Therefore the undersigned respectfully urge that section 209 of the war revenue act be repealed.

It seemed to me that as this was to be a general meeting of the Society that it might be advisable for the Society to frame also some such petition to Congress, as we are professional men and are affected in the same way as the legal profession.

The President.—You have heard what Mr. Rogers has said. Is there any discussion on the idea that he has proposed?

Mr. Knox.—Mr. President, wouldn't it be in order for Mr. Rogers to formulate his suggestion as a motion?

Mr. Johnson.—Mr. President, would it be in order to suggest that something might be accomplished by requesting the cooperation of the United Engineering Society, which represents the four great engineering societies. It represents a membership of something like thirty or forty thousand and the only thing that counts in Washington, as I understand it, is votes, and forty thousand would be a good deal better than two or three hundred no matter what the quality of the two or three hundred may be.



POPE YEATMAN

Mr Saunders.—I quite agree with what Mr. Johnson says, that the only thing that counts in Washington is votes. While it is fundamental, I question whether it is advisable to refer the matter to the United Engineering Society. The United Engineering Society is a holding company of property and really doesn't represent the engineering societies. The only organization that can be held to represent the engineering societies is the Engineering Council and that doesn't thoroughly represent the engineering professions, because it represents only four societies of those professions. But the Engineering Council is the only organization that really claims to represent more than one society in a matter of this kind, a matter of specific action. I would, therefore, amend the suggestion, if Mr. Johnson agrees, to refer it to the Engineering Council.

Mr. Johnson.—I am glad to be set right and accept the amendment.

The President.—There is no motion before the meeting. Any motion that any member sees fit to make will be in order. At present there is no motion whatever before the meeting. Mr. Rogers may, if he desires, offer a resolution expressing the opinion or request of the Society, or somebody else can offer a resolution requesting the Council of the Society to take up the matter with the Engineering Council or with the four national societies or with all other societies, or to do anything that we ought to to make a concerted movement in this direction. A motion either to that effect or a specific motion would be perfectly in order.

Mr. Rogers.—Mr. President, personally, I feel that four or five petitions representing thirty or forty thousand members might have more effect than just one petition. It seems to me that if each society, individually, framed some sort of a memorial to Congress and presented it, that it would have more effect than one memorial representing them all. I have prepared the draft of a petition on behalf of the Society which I would like to read. It is as follows:

The members of the Mining and Metallurgical Society of America, as engineers depending upon the exercise of their profession for their livelihood, respectfully petition Congress that Section 209 of the War Revenue Act approved October 3, 1917, be repealed. Although the incomes of engineers are derived from the practice of their professions, which are in the nature of labor and hence of a different character than those derived from investments, the members of the Mining and Metallurgical Society would not object to being assessed at the same rate as are unearned incomes. It seems, however, unjust that incomes from the practice of any profession, whether engineering, legal, medical or otherwise, which are the result of professional effort and which provide for the support

of the professional man and also for the savings for his old age should be subject to a heavy supertax; therefore the Mining and Metallurgical Society of America respectfully urge that Section 209 of the War Revenue Act be repealed.

The President.—Suppose that, instead of offering that as a resolution at this meeting, which might preclude concerted effort, you make a motion that it is the sense of this meeting that a request of that kind be communicated to the proper quarters in Washington as the opinion of the Society by the Council, and that the Council also be requested to confer with other societies respecting the same subject, and use its own judgment as to whether to communicate to Washington an independent resolution, of this nature, or a general resolution in connection with the other societies. In other words, express the sense of this meeting, express the consensus of opinion of this Society, but give the Council some latitude as to the precise way in which it should act.

Mr. Sharpless.—Mr. President, perhaps Mr. Rogers and some of the others do not know that the Society has a committee on taxation, that it has under consideration at the present time other matters that are of importance in connection with taxation, and is keeping in close touch with Washington, as to what is going on and what is liable to be done. It may be possible that this matter could be worked advantageously through that committee.

The President.—I should say in regard to what Mr. Sharpless has said that the committee, or delegation, to which he refers has in mind especially the matter of war profit taxes on mining companies and has had no instructions respecting this particular matter, and I feel sure that that representation would feel incompetent to act in this matter without specific instructions. I believe the best way to accomplish what is desired, if it be the opinion of this meeting that such an expression is desirable, would be in the way that I have already suggested, namely to express a consensus of opinion on the lines that Mr. Rogers has indicated and leave the precise method of action to the Council. The Council having had such an expression of opinion from the Society would know to what extent it was authorized to go.

Mr. Bartholomew.—Mr. President, I think a somewhat informal discussion of this idea is good before action is taken, because it isn't now clear why the Mining and Metallurgical Society should object to this tax. Now, I have attended several meet-

ings, and I have heard the members say that we are ready and willing to do anything the United States Government wants us to do, and as perhaps the hardest thing for any of us to do is to pay a tax, it seems to me that the Mining and Metallurgical Society would be in a much more advantageous and more enviable position not to make an objection to that tax. It has to be paid, anyway; the United States Government needs the money, and they are not going to tax people who cannot pay. (Applause).

Mr. Rogers.—Mr. President, it isn't that anybody objects to paying taxes under the present circumstances. It is only that one is warranted in objecting to paying an unjust tax. It has been a universal system of income taxation of other countries that a less onerous tax is imposed on one who earns an income than on one who sits back and collects it by cutting coupons. And that is the objection to this particular tax—a man who simply lives on his income pays two income taxes, whereas we who earn our living pay three income taxes; in other words, besides the tax which the security holder pays we have to pay the additional tax of 8% on all income over \$6,000.

Mr. Knox.—Mr. President, I should say it would probably be the sense of this meeting, of this Society, that this tax on incomes, over and above \$6,000, would be perfectly satisfactory if it applied to all incomes from whatever source derived over and above \$6,000. The objection being solely that it selects a certain class and leaves another class untouched, and I should think that the implication that we objected because we ourselves are taxed would be removed if it could be thoroughly explained that professions would not object to this 8 per cent tax if only it applied to all incomes.

Mr. Walker.—Mr. President, it seems to me that a little further explanation is required before we finally decide this matter. I believe there are a few unfortunate people in this world who live entirely by clipping coupons, but they are not very many. I think that all of us who have been fortunate enough to make some money, obtain, in addition to what we get professionally, some income from investments. As I understand this law, we are just as much exempt from paying an excess profit tax on what we receive from investments as the man who is fortunate enough to clip coupons. That part of our income isn't considered any more than is that part of anyone's else income. It isn't special legislation against us at all.

But there is another point that seems to have been lost sight of, and that is this: We have two men; take for example one man who is a professional man, a lawyer, a corporation lawyer, who receives large fees and without any capital investment; and then the other man who puts a few hundred thousand dollars into a plant and owing to the money he has invested and due to his brains besides, receives an income from that plant, which is a manufacturing proposition. He has to pay an excess profit tax on his manufacturing proposition and his income tax besides. Now, why should a corporation lawyer, who has no money invested, be exempt from an excess profit tax, when a man who has money invested, and is using his brains beside has to pay his excess profit tax? We are thus in no worse position than a man who invests his money and who uses his brains to make a profit out of the money which he has invested.

I was very much pleased to hear the gentleman at the other end of the table make the remarks in regard to what we, as members of the Mining and Metallurgical Society, have professed, in expressing our willingness to help the Government, and I think that unless we have a very clear case, it would be inadvisable to protest against taxation which has been levied at the present time.

Mr. Rogers.—Mr. President, regarding the man who has two or three hundred thousand dollars invested in a factory, I'd like to say that when that gentleman dies his two or three hundred thousand dollars still go on earning. When I die, my income stops and my family doesn't get anything out of it. That is the difference between those two men, and as far as people who clip coupons are concerned, I think there are a good many, but if there were only one, such legislation would still be discriminatory.

Mr. Johnson.—One of the speakers said that one of the hardest things we have to do is to pay our taxes. I don't agree with that. I believe the hardest thing we have to do is to submit to injustice and I believe that this tax is one of the rankest injustices that was ever put through, and it seems to me there are a great many men who are getting from investments, incomes equal to that received by any of those at this table, and those men are taxed from one-half to one-third or one-fourth of what men are taxed who are receiving similar incomes from their work.

If you take only the patriotic view of it, the very inequality of the tax limits the amount of money that the Government might raise by taxation. In other words, if it should eliminate this

discrimination, by taxing those men who get their incomes from investments as much as we are taxed, it would not only be more just, but it would also bring the Government more revenue. I believe that nobody here would object to a provision to tax unearned income on some such basis, but as it stands today there is the gross injustice, of which Mr. Rogers has spoken, and I think every man has a right to resent it, no matter how patriotic he is.

Mr. Pierce.—Mr. President, I don't know how to calculate this income tax. (Laughter). I don't know what it is going to amount to. I don't know whether my income is ten thousand dollars, or more or less, but I would like to have somebody explain to me, supposing it isn't ten thousand dollars, what tax I will have to pay. (Laughter.) As near as I can figure it, it doesn't amount to very much, comparatively speaking, and if that is the case, and as this is an emergency matter, I think we would be making a mistake in taking any action at all. I don't believe it is going to do any good. I think it would just put us in wrong. I have been informed that the Treasury Department is about to issue instructions concerning the calculations of the income tax. I think it would be wise to see what further information we get. I really would like to know what somebody's idea is. Supposing an income is ten thousand dollars, what will the tax amount to.

The President.—The crudities and complexities and general non-understandableness of the present law are all recognized by everybody. We have had in our small matters two cases arise this afternoon which to us would seem to be perfectly simple, and yet as to which we were unable even with the advice of numerous lawyers, to give any answer, namely whether the dues of membership in this Society—your dues—are taxable at the rate of 10%, or not. At our meeting this afternoon, in order to have a quorum we had in accordance with our constitution numerous proxies. We didn't know whether it was necessary to put stamps on the proxies of an organization of this kind, which is an incorporation—for we are incorporated—or not. About three lawyers told us that we ought to and about three told us that we ought not to. In the first matter, we didn't have to decide this afternoon, because the bills aren't going out for several weeks, but while we were in session Mr. Stoughton came in and said that he had just received a ruling from the Bureau of Internal Revenue to the effect that societies of this kind do not have to pay a tax on their membership dues. The matter of putting

stamps on our proxies is still unsettled, but that isn't a serious matter and we can leave that in abeyance.

Now, I don't think this is a question of patriotism at all. We are all proud to pay everything that we ought for carrying on the war. It is rather a question of equality. One man doesn't want to pay a tax of 50% while another man is paying a tax of only 10%. I conceive that the question that Mr. Rogers has raised is absolutely of that nature, rather than of any other. I am not expressing any opinion myself, but whether we take any action in the matter or not, it is absolutely a question for the meeting to decide, and as also in what form to take action.

Mr. Rogers.—Mr. President, I move "that the Council be advised that it is the sense of this meeting that some action be taken toward petitioning Congress regarding this matter." No, I will say it in this way: "That it is the sense of this meeting that the excess profit tax on professional incomes is an injustice and that it be referred to the Council for such action as it deems proper."

Mr. Johnson.—I second that motion.

Mr. Symmes.—Mr. President, I was in Washington for some time on taxation matters and, although this matter didn't come up directly, it was discussed there quite a little and I think that the consensus of opinion was that it was an injustice and that it would be rectified. The committee in Washington which is getting up the rulings—they ought to be out in a few days—is doing what it can to straighten out the present law, and to change the law is a difficult proposition. After we had taken the matter up with it, we found out that it was willing to make recommendations for changes in legislation. For some time we didn't understand that such was the case, but finally the committee seemed to agree to that and it will make recommendations for changes in the legislation to straighten out the inequalities. I think we would be merely in line with the general sentiment if we addressed ourselves in favor of abolishing these inequalities. All the work that the committee is doing, as to rulings or interpretations of the present law, is to that end. There are a very great many inequalities which have arisen under the law and the committee is very well apprised of them and its one difficulty is to do as much as it can under any reasonable interpretation of the present act.

I understand that no changes in the bill are likely to be introduced before next June or July, so that there can probably

be no change before that time, but I do not think we would be out of place if we put ourselves on record as stating that we believe that there is this inequality in taxation.

The general opinion of the mining men and the oil men who are in Washington, the general statement that they have made to the Government in every case, was that they were willing to pay any taxes that were levied upon them up to 95%, or even all, but the feeling was that when 50% of one man's, or a corporation's, income was taken that 50% of the other corporation's income should be taken, which under the present law isn't at all the case. There is now a premium given to those companies that have very large capitalizations, and it works out so unjustly that it is almost unbelievable how in some cases the man with a small capitalization is penalized and the man with a very large capitalization is allowed to get off, provided, of course, one can in some way justify that capitalization. But the matter has been gone into very thoroughly, and in my opinion the committee is very sensible to all these inequalities and it is scarcely necessary to call its attention to them except for the purpose of going on record.

The President.—Is there any further discussion?

Mr. Dufourcq.—Mr. President, the motion before the meeting is of such a broad nature that, considering the small percentage of the membership of the Society that it is possible to have at any of these meetings, we might better refer it to the Society at large. I move an amendment to the motion before the meeting that the question be referred to the membership at large for postal ballot.

Mr. Rogers.—Mr. President, it seems to me that prompt action in this matter is desirable. This is an annual meeting of the Society and should be competent to express this sentiment at any rate. The motion as framed simply expresses the sense of the meeting, and therefore I am very sorry I cannot accept the amendment.

(The previous motion of Mr. Rogers was then read, and after some discussion it was re-worded as appears below.)

That it is the sentiment of this meeting that the tax of 8 per cent. on professional incomes in excess of \$6,000 per annum is an injustice and that the Council be advised of the same and be asked to take such action as it may deem proper.

The President.—Gentlemen, you have heard the motion. Are you ready for the question? **Motion carried.**

The President.—Is there any further business to be introduced this evening? We are fortunate in having with us tonight some of our members who have very lately returned from Russia. There is no country on the face of the globe that is now a matter of more concern or such deep interest than this great country of Russia, in which such strange and unfortunate things have been taking place. We welcome the opportunity to get first-hand information about that country from engineers, our own fellow engineers, on whom we know we can rely and in whose perception we have the engineering confidence, and who have lately returned from there. This is especially so, in view of the fact that they haven't been casual visitors to Russia but are men who have lived there for years. I have great pleasure in introducing to you in the first place our fellow member, Mr. J. P. Hutchins, whom we are delighted to welcome back to New York. Mr. Hutchins has kindly volunteered to tell us briefly what he can about Russia. Now, he has not prepared any formal address, he is going to talk absolutely off-hand, and his idea is that, after giving some general facts and some general ideas, the best information can be drawn from him by your asking questions; so therefore consider that, after Mr. Hutchins has talked to us, he expects you to ask him questions and we hope in that way to learn a lot. Mr. Hutchins. (Applause.)

Mr. Hutchins.—In order to give a comparatively complete idea of the great movement that is taking place in Russia at the present time, I will try to give in a few words the causes of the revolution. This may seem to be unnecessary, but I do not think that the situation that existed in Russia previous to the outbreak of the revolution has been thoroughly understood.

First of all, Russia has been and still is, of course, decades, perhaps even centuries, behind the best nations of the world. The masses were oppressed by a government the stupidity of which is perhaps indescribable. They were kept in ignorance, they were debauched by their government as a fiscal policy. To raise revenue of the magnitude of nearly four hundred million dollars a year, they were practically compelled to drink vodka, which was sold in government vodka shops in even the smallest hamlets in the most inaccessible parts of Siberia. At the same time they were prevented from acquiring education from the time that they were freed, which was accomplished in 1861. Up to that time most of the Russians were serfs. At the same time there has been a lack of religious freedom, there has been no such thing as freedom of the press, and, as a result of their ignor-



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ance, there has been a lack of appreciation of healthful sport. Neither the Russian peasants nor nobles know how to play.

The exploitation of the many by the few was reduced to a finer art in Russia than in any other country in this world. In this respect Russia resembled Mexico, having an ignorant, superstitious, religious people, addicted to the use of alcohol and exploited by the few who surrounded the autocrat who ruled the country. The sole pleasure of the Russian peasant is still drunkenness, although of course, at present he isn't able to indulge in this pleasure. There was before the revolution a strong movement to introduce temperance. However, the government was so stupid that it couldn't see this, couldn't recognize it, and it refused to take such steps as were necessary to introduce reforms.

Before going further, I wish to call attention to perhaps what is not generally recognized and that is the circumstance that this revolution is a movement having a deep idealistic character. I think that perhaps it is the forerunner of similar movements in other countries. I think that we may find that international socialism will develop into a movement like that of Mohammedanism, or like that which was observed during the Crusades, or like that noted in other great religious movements.

Formerly, when rulers wished to begin war they appealed to the religious beliefs of the people. It would appear that, at the present time, the appeal is made not to religion but to something that now perhaps takes its place, and that is the feeling of nationalism. The most idealistic of the Russians, called in the press of the present day the Bolsheviks, are appealing to internationalism.

When in any country the persistence of old manners and customs and taboos has continued after the conditions of the country have changed to a considerable degree there must be an eventual correction, and this may take place either by reforms, when it is peaceful, or violently, when it is called a revolution. The House of Romanoff, which has recently been overthrown, would not consent to peaceful reform and so had to bend to the irresistible force of a violent revolution, so violent and so unanimous that the ruling house was overthrown in fewer days than it had sat centuries on the throne of Russia.

It is interesting to trace the course of the revolution to the present time. The revolution in Russia began through hunger. The working people of Petrograd had experienced great difficulty in getting bread. The first demonstrations in Petrograd, which I observed, having been there when it began last March, were

food demonstrations. They had no particular political significance. However, the more progressive thinkers among the lower classes saw that it was an opportunity to accomplish what they had looked forward to for years and they introduced the political idea. The first demonstrations, which marched with banners asking for bread, were followed by demonstrations in which there were banners inscribed, "Down With the War."

As I said before, the overthrow of the old government was accomplished in a very few days. At the same time, the old manners, the old customs, the old beliefs and taboos were set aside. Nothing was given to the people to take the place of these manners, customs, beliefs and taboos. It takes time to develop these, and, as the people were left without them, they became upset and they are still in this frame of mind, and thus there is a chaos of manners and customs.

The revolutionary leaders had hoped to postpone the revolution until after the war was concluded, and I think that they made a sincere effort to prevent the revolution taking place when it did, realizing that it was not a suitable time and that it would be too much of a strain for any country to carry on a great war and a great revolution at the same time. However, they were unable to do this. When they saw that the revolution had begun in spite of their efforts to prevent it, they attempted, and are still attempting, to carry the people over to new manners, new customs, new taboos, new beliefs by means of dogmas and catch phrases. In this they have been unsuccessful, and it appears that the similar attempts made in other revolutions were practically always unsuccessful. This is in a few words the present situation in Russia.

What we are perhaps more interested in, of course, is what will be the future progress of the revolution. It is exceedingly difficult to picture this exactly, but in my opinion conditions must get worse and much worse before they can get better. The reports that I have seen in the American papers, as well as in the English papers, which more or less coincide, describing the events in Russia, are very much exaggerated. Russia has been always badly misrepresented. There seems to have been a perhaps accidental disposition on the part of writers who have written of that marvelous country to write picturesquely rather than accurately, and while it appears that the situation in Russia is so bad that it cannot get worse, I may say that after having lived in Russia from the time of the beginning of the revolution last March until the 2nd of November, which was only four days before the present phase of the revolution began, there were no

great difficulties. To be sure, we didn't have all the food we wanted, and there was some street fighting, which, however, wasn't dangerous to one who kept off the street and minded his own business.

It would seem that when the worst comes, it will be precipitated by some factor like the critical lack of food. It is easy to picture that should there be general hunger in Russia there might result house-to-house search for food, the looting of wine cellars, consequent drunkenness, looting, burning, raping, and if this situation should develop simultaneously all over Russia, it might result in the whole country touching bottom at the same time with a general demand for better conditions, for better government, when there would probably be the demand also for a one-man government, because of the circumstances that the many-man government which has been attempting to enforce authority had proven a failure. I think that there will be a demand for a one-man government and, probably, as a result of such demand, there will be a military dictatorship.

This military dictator, if he be wise, will call to his assistance many of the old ruling class who are experienced in government. I think that it will be necessary to use some force to restore order, although I can also conceive of there being a general submission and self restraint, such as was observed in the overthrow of the ruling house which was accomplished in a few days. It is possible, too, that the old ruling classes will succeed in setting up a government quite similar to that which the House of Romanoff had and, should this happen, there would probably be the necessity for another revolution, and then there would probably be the solution of the matter when some sort of a constitutional monarchy, much better than the old government and introducing obviously necessary reforms, came into power.

There are some outstanding features of the revolution that are worth noting. The practical unanimity of the revolution is perhaps the most noticeable of these. As a result of this feature, there was almost a total lack of bloodshed in the early days. I don't think that there were as many people killed during the period when the House of Romanoff was being upset as would take place, say, in a longshoremen's strike in San Francisco. The practical unanimity of the revolution and its lack of bloodshed caused a rather misleading conclusion throughout the world. Everyone thought that the revolution was finished and that the beautiful submissiveness, the lack of attempt to take advantage of the situation when there was absolutely no authority, when the police had been hunted to death or driven out of the cities,

was a most hopeful sign, but it appears, however, that this may be observed when one reads of other revolutions.

Another outstanding feature of the revolution is the resemblance, the parallelism and the coincidence of events, which is observed when one compares the French and Russian revolutions side by side. This has, of course, a discouraging aspect. The French revolution lasted for quite a number of years. It is possible that the Russian revolution may not be concluded in less time. However, there are reasons for believing that the Russian revolution will progress more rapidly and it is my hope, after having had considerable to do with the peasants, after having lived in their houses and worked with and among them, that there will not be this long period.

There is a further interesting feature that it is rather difficult perhaps to visualize, and that is the possibility of Russia still being a factor in the war. If it were possible for us to get the Russian army into this room and say the right thing to it, and prevent Mr. Trotsky, or some other gentleman of his beliefs, from talking the Russian army into adopting his ideas as it walked up Fifth Avenue after leaving here, the Russian army would immediately go out and kill millions of Germans. The Russian army at present if it had food and clothing and the intention and desire to kill Germans would be able to do it with great speed. If the war lasts another two to five years, which it seems to me is quite necessary if the Allies are going to win, it would not surprise me to see Russia again on the firing line.

The future of Russia, of course, interests us greatly. Her needs will be great. Russia will produce much food and raw products which the world will need probably, more than manufactured products, after the war. I think that Russia will recover rapidly therefore and that she will have money to spend abroad. However, Russia will need foreign capital as she will not have enough for her own needs. I do not think that Europe will have spare capital to lend Russia or to invest in Russian businesses. America should be able to furnish such capital and in addition such engineering, management, and methods as will probably be indispensable to the scope and scale of the Russian needs. Russia is friendly to America and admires American methods, recognizing that, of all the countries, America is the only one that can furnish the means and methods essential to her rapid future development. Russia's requirements in metals and minerals will be great and I think for some years she will continue to be an importer of nearly all minerals and metals, except platinum and

manganese, which she exported before the war and which she will be able to continue to export.

The attitude of America toward Russia now is a matter about which I should like to say a few words. When we remember that until 1861 most of the Russians were serfs, and that since 1861 they have been prevented from learning, and that they have been debauched by their government with vodka to raise revenue for that government, it seems to me surprising that they haven't done much worse things than they have done. It seems to me that we ought to extend to them our deep sympathy and try in some way to assist them in their period of distress. (Applause)

The President.—It is very good that we have had this very acute and intelligent representation of what is really happening in Russia. Mr. Hutchins, I am sure, would welcome any questions that anybody here cares to ask him.

Mr. Pierce.—I would like to ask Mr. Hutchins what the word "Bolsheviki" means.

Mr. Hutchins.—"Bolsheviki" is a practically exact translation of the word "Maximalist."

Mr. Pierce.—May I ask what is "Maximalist"? (Laughter.)

Mr. Hutchins.—Perhaps if I translate it exactly, state what the word "Bolsheviki" means, it would enlighten you. The word "mnogo" in Russian means "much," "bolshe" means "much more." Bolshevik is one who wants all, his are the maximum demands.

Mr. Pierce.—That is what I was told; it is the man who wants more. I'd like to ask another question. You said that it was possible that one of the results of the revolution might be that a military dictator would be appointed who would control the whole of Russia. Is it at all likely that the various provinces of Russia will hold together? Isn't it more probable that Russia will split up, and that there will be a great many different small countries? I understand that the nationalities of Russia number perhaps over thirty, and that they are very different, and now that they are free and can go their own way, there is no telling where they will land. They are very distant from each other, too. Communication between different provinces must be very difficult. It seems to me that, considering the general conditions at this time, such a province as Ukrainia might become a separate

nationality, might become a separate kingdom, might even combine with certain sections of Austria and Hungary to be a country by itself.

Mr. Hutchins.—My opinion on that feature is the following: Finland, Poland and the Baltic provinces are likely to be lost by Russia. Of course, the inhabitants of these provinces are not Russians, anyway. Perhaps a large majority of the people in these provinces is not Russian. The Finns, the Poles and the inhabitants of the Baltic provinces are superior to the Russians and this is well instanced when one remembers the small proportion of illiteracy in Finland. It is about 1.5% as I recall it, whereas the illiteracy in Russia, of which I think there are no exact data, is very much greater than that; it is probably over 50%, perhaps over 75%. As for the rest of Russia, including the Ukraine, I think there are no centrifugal forces. On the contrary, I think there are rather strong centripetal forces. They have a common religion and a common language. I don't think that Russia will disintegrate.

Mr. Knox.—Mr. President, it seems to me that Russia today presents two aspects to us. One of them is purely economic—the very interesting historical episode and political situation that presents itself. The other, however, is of most intense interest to us because it is practical; that is to say, the question as to whether Russia stands with us, the Allies, or against us—because if she isn't with us, she is against us. Mr. Hutchins makes an appeal for help for the Russians. That is an appeal that is familiar to us—it has come from several sources—but I think it would be very interesting at this time to know whether, in rendering assistance to Russia, we are giving assistance to a friend or a foe. If the needy beggar makes an appeal, one wants to know whether he is assisting him to obtain burglars' tools, or otherwise. It has been said that the greatest need in Russia is for tools, machine tools and ordinary tools. If those are supplied, are they going to be used for us or are they going to be used against us? That I think is a question that must be answered before the other question can be settled as to whether Russia is to receive further assistance from her former allies or not.

Mr. Hutchins.—Before I answer that question, let me say that I omitted to call attention to the circumstance that communication in Russia now between the utmost parts, say between Vladivostok and Petrograd, is easier and quicker than it was during our revolution, between say Georgia and Massachusetts,

easier than it was between Marseilles and Calais during the French revolution, so I don't think that that is going to be a potential factor in tending toward disintegration.

As to Mr. Knox's question, it is a difficult matter to predict exactly what Russia is going to do. When I was in Petrograd, I took particular pains to attempt to find out whether Trotsky was really a patriot or a traitor, and I had information from both sides and quite contradictory. The reports that we have received in the last few days from Russia have led to the conclusion that he is a patriot, although this seems quite difficult to reconcile with some of his actions and the reports that I got on him while I was in Petrograd. If Trotsky is a patriot, and I think we ought to be charitable and try to believe that he is, the danger of anything that we send to Russia going to Germany isn't great. It would depend, too, whether it were sent to some district in Russia that is comparatively near the field of occupation by Germany or whether it were sent, say into the manufacturing region somewhere in the Moscow district, which, of course, is a considerable distance from the present line of occupation by the Germans. There are so many factors that may affect the course of the revolution in Russia, that I must confess that it is quite beyond me to predict anything definite, and I am afraid that I am prejudiced by the optimism that I think all those have who have been in Russia and who have observed the tremendous resources of the country and have seen the way in which the country has been misrepresented and abused.

A Member.—Has Trotsky a national following, or is he more or less local in his activities?

Mr. Hutchins.—No, his activity has spread all over the country. I don't think he is followed by the majority of Russians, by any means. Trotsky is the cleverest parliamentarian in Russia at present. He succeeded in the many conventions that took place in Russia, during the past six months, in demonstrating that he is the ablest man in what we might call these talking competitions—debating societies—and he was able to make the people follow him; that is, enough of them to overthrow Kerensky.

A Member.—Is he a Russian?

Mr. Hutchins.—I don't know.

A Member.—I want to ask one question. Just before the revolution, the Grand Duke Michael was spoken of as having quite a following and as being a much more liberal man than

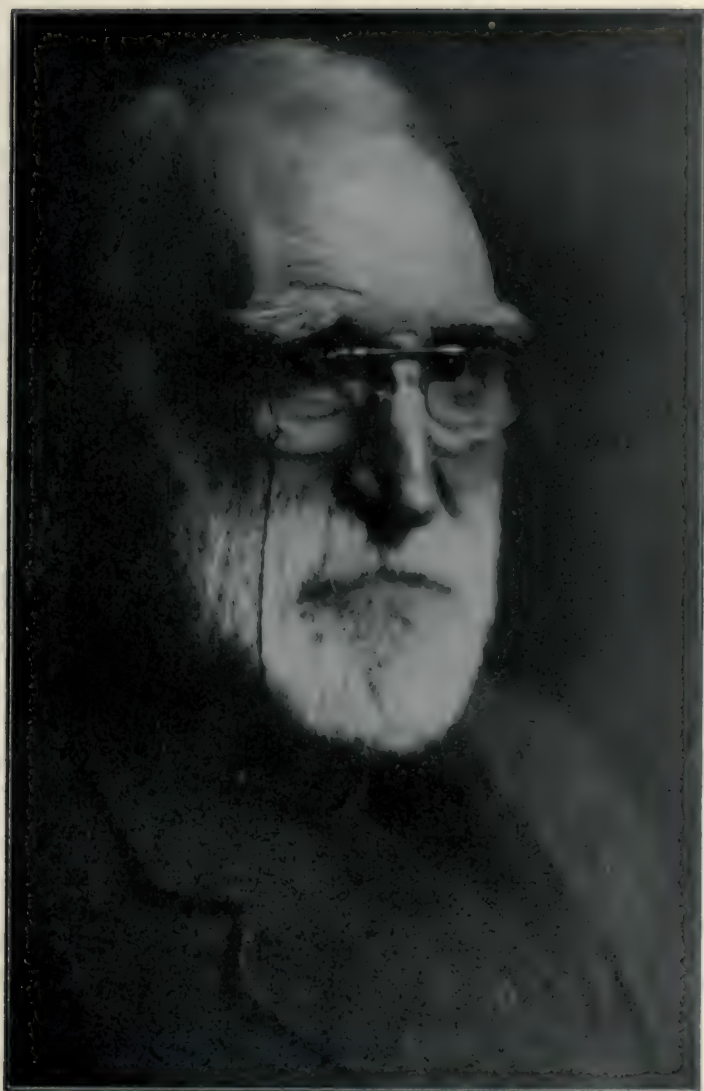
most of the nobility. Has there been any rallying at all in any part towards him? Did you hear any mention of him at all as one who might be called upon in the case of a dictatorship?

Mr. Hutchins.—No, I did not. On the contrary, I heard that he, as being a member of the House of Romanoff, was included in the general and total discredit that that house had brought upon itself through its inefficiency.

A Member.—You spoke of having been among the peasant class. Did you find the peasant class upholding this revolution or does it know practically nothing about it?

Mr. Hutchins.—The peasant class at the present moment is in a peculiar mental attitude, resembling madness more than anything else. It is a practical demonstration of this idealism, super-idealism you might call it. The peasants have had all their pleasures, their ideals, their former idea of religion, their government—everything—taken from them, and they have gotten nothing to take the place of these things. Their sole pleasure, which was getting drunk, has been taken from them due to the very effective prohibition.

The President.—As to the question that Mr. Pierce raised, namely the danger of Russia flying to pieces, the record of history, of Russian and Slavonic history, is quite opposed to any idea of that kind. There are in Russia three fundamental races, the Slavs, the Finns and the Tartars. In the course of time the Slavs more or less absorbed the Finns and Tartars, and Slavic ideas gained predominance in the country. Now, of course, Russia wasn't always the large nation that it is at the present time. The Slavic people were not always together, but people of that race were occupying a great country in which the conditions throughout were substantially the same; a country of great plains, without any great mountain ranges separating one part from another and producing sections in which different economic interests obtained. Just because of this great flatness and absence of divisions, there was a tendency in the course of time for the people living in one part to amalgamate with the people living in another part, and as a result the great empire grew. Now, we have read lately a great deal about Ukrainia, and many people have perhaps got the idea that the Ukraine was at one time an independent country which lost its nationality. That isn't so, or if it is so it would be necessary to go further back than recorded history goes, as far back as the time when these Slavs first migrated into Russia, or what is now Russia. Previous to 1656 the Ukraine



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was a part of Lithuania, which, at that time, had been united to Poland. In about the middle of the 17th century, the people of the Ukraine, the Little Russians, and especially the Zaporogians, who are the ancestors of some of the Cossacks of the present time, rebelled against the Poles and cast their lot with the Grand Duchy of Muscovy, and through that amalgamation produced the first great increase in the Empire of Russia. Later on the Kingdom of Poland, and then finally the Grand Duchy of Finland, were also amalgamated with Russia, and I fancy for economic reasons rather than any other. The teachings of Russian history are wholly in the direction that the economic factors in Russia are centripetal rather centrifugal.

We have with us tonight a fellow engineer who has lately become a national celebrity. A few days ago, we read in the newspapers about one of our colleagues whom we used to know very well, but whom we had, I won't say, lost sight of—but at all events, whom we hadn't thought so much about as previously, for the reason that he had been living for some six years in Russia. The first we really heard of him was a few weeks ago when the newspapers reported his arrival in San Francisco, with about two million dollars worth of platinum. Now, the newspapers made a fine story of that. They gave all kinds of versions, telling among other things how he had brought that platinum all the way from the Urals, through Vladivostok and Japan, to San Francisco chained to his wrist. (Laughter) How he brought two million dollars worth of platinum chained to his wrist, we couldn't fathom, but even if we couldn't do that, we would like to know how he brought it anyhow and he has kindly consented to tell us, and I have great pleasure in introducing Mr. F. W. Draper. (Applause)

Mr. Draper.—During the time just before the United States entered this war, when we, who were abroad, had gotten rather tired of making excuses as to why America didn't go in, we felt so sure that she would after a while that Lieutenant Stines, a fellow mining engineer in Russia, determined that he was going to collect as much platinum as he could, because he was certain that it was going to be required in America one of these days. He also knew—as we all knew—that German agents were obtaining much platinum from Russia, and were putting it to a use to which we were conscientious objectors. Lieutenant Stines happened to be connected with large banking interests in Petrograd which were able to finance this undertaking, and they said, "Well, go ahead and collect all the platinum you can."

A good deal of this platinum had to be collected in small lots, it had to be collected in competition with the German agents, and there was more or less difficulty and some danger attached to that, but an amount was collected and deposited in Petrograd, worth about two million one hundred thousand dollars. To give you some idea of the amount that I had chained to my wrist, let me say that when it was boxed and ready for shipment it weighed 1,965 pounds. I think those were the figures on the bill-of-lading.

Well, when we had this platinum in Petrograd, the question came up of getting it over here. Lieutenant Stines approached the American Express Co., which had recently appointed an agent in Russia, and suggested that it undertake to deliver this platinum in America. That was a little more than the agent wanted to undertake on his own responsibility, so he telegraphed to New York and got the reply that under no circumstances would it touch it at all. As I happened to be connected as consulting engineer to some of the people interested, when I drifted into Petrograd in a peaceful frame of mind they informed me that I was going to take it out. I won't repeat exactly what I said at first but in the end said, "Well, I suppose I am then," but I added, "You will have to do exactly as I want and make exactly the arrangements that I want," because I knew that Russia is full of German agents and they don't hesitate very much as to the means which they adopt to accomplish their ends.

That was one factor. The second factor was that, where the Trans-Siberian Railroad passes through Manchuria, there are certain tribes of Manchurian bandits which, if they had known that this material was coming through, wouldn't have hesitated to hold up the train, or to hold up all trains that came through, until they found the right one; and as at the present time there is no police security anywhere, and no authority, these bandits would have been quite fearless. I didn't, however, worry much about that because, at that time, I was sure that any telegrams which might be sent from Petrograd regarding my departure would get to their destination long after my train had passed; telegrams in Russia usually went by mail and the mail trains go slower than the Siberian Express. But anyway, I said, "Put the platinum in boxes that are so big, that one man couldn't pick up and run away with a box." It was boxed in nine boxes, weighing, on an average, 215 pounds.

At first I said I wanted a private car on the Siberian Express so that no one could get in at all, and then after thinking about it, I said, "No, that draws attention to myself. I don't want to

draw attention at all, I want to go along as if I didn't have anything of special value." So, the Embassy was asked to get three adjoining compartments on the Siberian Express, which it did.

The shipment of the platinum had been arranged through the Department of Commerce, and it was understood before I left that it would be placed at the disposal of the U. S. Government, either in part, or all of it, as it might want. Consequently, it was sealed in Petrograd with the Embassy seals on the outside of the boxes, and I was provided with a courier's letter and some envelopes for delivery in Tokio. That was necessary in order to avoid the inquisitive customs which might want to know what was in the boxes and might take samples of the platinum; and if they had taken samples, it is doubtful what would have been left, after they have gotten through. Having the boxes sealed by the Embassy, and with the courier's letter, I was pretty sure I could bluff them out.

The train leaves Petrograd at eight o'clock in the evening and at about half past six we loaded the boxes on a dray at the bank and went down through the Nevsky with them, with the bank's porters to carry them on board the train. When we got down to the station, which was more or less congested, because there were big crowds on the platform due to the fact that a train carrying all classes of passengers, leaves on the adjoining track going to Archangel—there were soldiers, peasants and every other class. We got the platinum on a truck and carried it down the platform, but the porter of the car at once said. "You can't take it in there." I replied, "We have got to take this, it is embassy stuff." He repeated that I couldn't have it in the car; but as after six years I know more or less what to do—it is only a question of how much, that is all—I decided how much he needed and fortunately my guess was right. Anyway, there was no more difficulty about putting it in the car. It had been arranged that the cashier of the bank should go along with me and we two decided that we wouldn't overdo our precautions and that we wouldn't even keep the compartment doors closed all the time, though of course we didn't both go away at the same time. One of us went to the restaurant car first and the other went when the first had finished.

Well, we left Petrograd all right and everything was peaceful until we got to Vologda, which is a station about fifteen hours from Petrograd. There trouble with the returning soldiers began. You see, the Russian idea of freedom, especially the soldier's, is that any accommodations that anybody else has got he is quite free to take. We were unfortunate when we came into

Vologda in that there was a troop train of demobilized soldiers, a great many of whom were going to Siberia. They decided that the express would be very much better and very much more comfortable on which to travel than the freight cars they were using and so they were going to take it and pack everybody out. Well, there was a long argument about it, and I think that the station master didn't know for a few minutes whether he was going to have a funeral next day or what. Finally, all but about fifty of them were pacified and got out of the way; of these, about twenty-five or thirty climbed on to the roofs of the cars and the rest of them got on the platforms and in the corridors. But they were more or less peaceful and, a little ways down the line, most of them got off. Then, as we went along further we passed these troop trains, two or three times. Special trains are allotted to the soldiers and as even then there are so many difficulties due to their crowding on to the passenger trains, it is arranged in this way: Special trains for soldiers are run ahead of the regular passenger trains and the passenger trains never attempt to pass troop trains, because the soldiers would all get off and pile on to the passenger train if this were done.

Our express caught up to a troop train twice and the soldiers stopped us, as they were short of engines. It would never do for the bourgeoisie to go ahead of soldiers, they argued, and so they would have to take our engine and go ahead. I didn't care anything about that, if they would only stay out of our train so that we could remain. There was food in the dining car and we didn't care particularly about a little lost time.

Outside of such little difficulties, we didn't encounter any trouble until we got to the frontier at Manchuria. There the customs were very insistent, and said that they would have to see what was in my boxes. I showed them my letter with the seals on it, which was written both in English and in Russian, and succeeded in bluffing them off. One of them stated that his superior officer would demand from him a report, and I said I had embassy documents and that if he would apply to the embassy in Petrograd very likely they would tell him what the documents were. Going across the rest of the way to Vladivostok, I didn't find any difficulty. Now, that it is all over, I don't see why I worried about it.

My instructions were that when I reached Vladivostok I would find shipping directions. When I reached Vladivostok I didn't find anything, but I deposited all the platinum in the bank and then began to wonder what I should do. Then, how-

ever, I got a telegram from Petrograd saying that evidently the telegram to the New York representatives hadn't been permitted to pass the censor and that I must repeat it. So, I had to leave the platinum in Vladivostok and go to Japan to telegraph to New York for instructions. It took eleven days to get a reply from New York to Yokohama. This, of course, was due only to war conditions and because the cables were overcrowded with work. However, I finally got an answer and then, my troubles began when I thought they were all over with.

I had figured it all out that I could go back to Vladivostok, get the platinum and take it over by a certain steamer, reaching Yokohama at a certain date, and from there ship it by express. I got it all fixed up and started for Vladivostok. When I got to Tsuruga, the Japanese port from which the boats leave for Vladivostok, the steamer of the Russian volunteer fleet was one day late in coming in. It seems that it had had a characteristic occurrence. One of the firemen had insulted a passenger on the steamer and the third officer hearing it, had reprimanded him, a thing which in these days of freedom is forbidden. The fireman promptly informed the officer of his opinion of him and then it reached the captain and ended in more or less of a row, and when the captain got back to Vladivostok he refused to take his steamer out unless this fireman was discharged. Well, the fireman put the case up to the Workmen's Council and after debating the matter, the steamer meanwhile lying at the dock, the Workmen's Council decided that the fireman was to blame, and that he shouldn't have insulted the passenger, but that the officers were also to blame, in that they shouldn't have called this fellow down. Then, in order that there shouldn't be such an occurrence again the Council decided that it would appoint a committee to sail on the ship in order to keep the peace between the captain and the crew. (Laughter.) Well, of course, the captain naturally said that he was either running the ship or he wasn't running the ship, and he wouldn't put to sea in that way. All this had delayed the boat and when finally we got back to Vladivostok we were about a day and a half late.

Well, I had three days to spare, and I thought things were still all right. The boat should have sailed again on Saturday night, but owing to the delay had not time to load before Sunday noon and therefore, we made arrangements with the bank to get the platinum out on Sunday, which required the presence of the bank employees on a holiday. In these days of freedom they don't like to work. They never did, but they like it less now. They finally agreed to be on hand and we got the platinum

down to the boat, which was to sail at five o'clock. The whistle was blown once and so I felt that it was now all right, and I could say good-bye to Russia. I waited and when the second whistle didn't come, I began to get uneasy because I had the platinum in my state room with me; and when more time passed and still the steamer didn't leave, I made inquiries of the captain. "Well," he said, "the repairs aren't finished yet." It seems that the steamer had two feed pumps in the boiler room, but that one had been out of commission for three months and that the *tovarishi*, which is the Russian for workmen and corresponds with the word citizen as used in the French Revolution, hadn't been able, or more likely willing to repair it, and now the other one had broken down and wouldn't take in water. However, the captain said, "We are going at 8 o'clock," and so I waited till 8 o'clock, becoming more and more uneasy because a great many people in Vladivostok knew that this platinum had arrived or was about to arrive. The telegrams to the consul with instructions to help us out had leaked out from the telegraph office.

When 8 o'clock came and we didn't leave, it was said, "We are going at 10"; 10 o'clock came, and still no sign of departure. So, I looked for the captain and not finding him, located the first officer, who said, "We are going at 11 o'clock." At 11 o'clock we didn't go. I was getting pretty nervous and pretty tired. I finally said to the first officer, "Well, what *are* you going to do?" He said, "I don't know, they haven't finished the repairs yet. I think, though, we will go about 12 o'clock." I then made up my mind I was in for it and might as well lie down anyway; so, I locked up the port holes and the cabin door and went to sleep and my worries apparently didn't affect me too much because I slept until 8 o'clock in the morning. When I awoke we were still tied to the dock, so I approached the captain again. "Well," he said, "the chief engineer will be up in a minute and he will tell us what we are going to do," and when the chief came up I said to him, "What are you going to do now?" He answered, "The repairs are all made now, and we will go out in a few minutes."

We started out about half an hour afterwards, but when we got down the bay, about twenty miles, I guess, and were having lunch, I felt the boat stop. The captain got up from the table, went out and was gone perhaps five minutes, and came back, but didn't say anything. A few minutes later I happened to look out through a port hole and saw the land swinging around and I said, "What are we going to do now?" He replied, "We are going back, the feed pump don't work"; and we got

back Monday night at 6 o'clock. I said to the captain, "Now, what are we going to do?" He said, "The manager will be here at 9 o'clock to-morrow morning. I guess he will tell us what the plans are." That is typically Russian. There was nothing therefore to do but to stay another night on board with the platinum.

The next morning at 9 o'clock I hunted up the manager, who stated that "We have lost so much time now we might just as well wait and sail on schedule time, on Saturday." That is also typical. (Laughter.) Thus, there was nothing to do but to employ Chinese carts and Chinese drivers, and to again parade through the streets of Vladivostok to the bank, and to wait until the next Saturday.

Next Saturday we did a little better and got away all right, and as soon as we were over in Japan, I didn't have to worry any more. I had made arrangements for a special car on the Japanese railways, in which to put the platinum. As usual, the Japanese reporters were on hand and wanted to know what the special car was for. But I was very non-committal, and as I didn't want to tell them anything, they looked upon me as a very suspicious character. When I arrived in Yokohama and had delivered the platinum to the American Express Company, the police began to investigate me and I discovered that there had been a detective watching my family for the last week. The Japanese are most efficient and they published a very nice little piece in the paper about me; it reads as follows:

A suspicious-looking American, who poses as a Boston merchant, arrived at Tsuruga from Vladivostok on the morning of the 19th and came to Yokohama the next day. He is now registered at a hotel at Yamashita-cho. It is said in this connection that he has been staying in Russia since the outbreak of the war, at which time he went there from America on some important unknown business. The police of Yokohama failed to draw any information from the stranger, and are now keeping a watch on his movements. The American is expected to sail on the Empress of China shortly.

That is about all there is to it. While the platinum was in Japan it was in the hands of the American Express Company and it was quite a simple matter for me to come the rest of the way. But those little experiences in Russia are so typically Russian they will do to bear in mind, especially this idea, "We will sail next Saturday, what's the use of hurrying?" (Applause.)

The President.—On one day last week I happened to be taking lunch with Dr. Ledoux, and he told me about his assaying and got on the subject of platinum and told me another

interesting story—he always has interesting stories, all kinds of things happen to him—a most interesting story about counterfeiting gold coins in Colombia with platinum. Colombia, you know, does produce some platinum. Well, I said, “That is such a good story you must tell it to us,” and he said, “All right, I will.” But as he was unable to be here to-night, he delegated Mr. Smoot, his right-hand man, to do it, but something or other happened to prevent Mr. Smoot from being here. But mindful of their promise, Smoot wrote out the story and sent it up here, and I will read you Smoot’s story about counterfeiting Colombian coins with platinum:

COUNTERFEIT COINS MADE OF PLATINUM.

A shipper of platinum from Venezuela recently sent to this country several counterfeit coins which were unusual in that, although counterfeit, they were worth about five times their face or bullion value.

These coins were included in a shipment of crude grain platinum and the consignee, believing that they were gold, as they seemed, and being at that time uninformed by the shipper carefully removed them from the lot of platinum and sold them to a gold refiner as gold bullion.

Later on, advices from the South American informed his agent that the coins were platinum, plated with gold, and requested that he have them assayed to determine their real value. The agent hastened to the refiner who admitted that he had had a hard time melting the metal and had himself discovered that it was platinum. Some settlement was made satisfactory to both the refiner and the agent, but the coins were destroyed and so far as I know no analysis was ever made to determine the exact value of the metal.

In another shipment of grain platinum received at a later date, the same shipper included a single counterfeit piece. The agent brought it to our laboratory for analysis, but intrinsically, the single piece was hardly worth the cost of analysis from the purely commercial viewpoint; besides, the coin being an excellent piece of work in a fine state of preservation, it seemed a pity to destroy it. The gold plating is somewhat worn, disclosing the white metal beneath in spots. The coin is a counterfeit of an old Spanish piece bearing the date 1789 and the head of Charles IV. It weighs 6.435 grams and has a specific gravity of 18.9. This of course shows that if it is not gold, it must be platinum or at least an alloy consisting principally of platinum. The color of the metal, after removing the gold plating and its hardness are sufficient additional proof of its character.

It seems that these old Spanish pieces pass current in Venezuela, at least for their bullion gold value. Some unprincipled person in the long ago must have discovered that the native platinum found to some extent in Venezuela and more plentifully in the neighboring Republic of Colombia would if melted make a fair substitute for gold in coins provided the color were properly disguised by a thin gold plating.

Colombian grain platinum contains about 82 per cent. of platinum, 2 per cent. of gold, 1 per cent. to 2 per cent. of iridium and osmiridium, and some other platinum metals together with several per cent. of mag-

netic sand and other impurities, including a small amount of base metals. This material if melted and fluxed might be expected to have a specific gravity of about 19; but it is rather difficult to melt it.

Whether these counterfeit coins were made at or near the date they bear or at some much later period is unknown to me—probably at a comparatively recent date—but they must have been made some time before our South American friends were able to market platinum at a price above that of gold, and that is long ago. Whenever they were made, we now have the curious condition of a counterfeit gold coin intrinsically worth several times its face value.

At 10:30 p. m. the meeting adjourned.

EDWARD B. STURGIS,
Acting Secretary.

Addenda.—Below will be found biographical sketches of the gold medalist and of the two honorary members, to whom reference was made by the President at the beginning of the evening session. These purely professional records, were prepared, in the case of Mr. Yeatman by the Annual Medal Committee, and of the other two by the Secretary.

POPE YEATMAN.

Born, St. Louis, August 3, 1861.

Received the degree of Engineer of Mines from Washington University, St. Louis, Mo., 1883.

1883-1895.—In mining in Mexico, Missouri, New Mexico and Colorado.

1895-1904.—In South Africa. Was in charge of the opening and development of the Robinson Deep Mine of the Cons. Gold Fields of South Africa, 1895-1899. Later he was General Manager of the Simmer and Jack Proprietary Gold Mining Co., and General Manager and Consulting Engineer to the Randfontein Estates Gold Mining Co., and responsible for the organization, equipment, and development of this whole group of mines.

1906-1916.—Consulting Engineer to M. Guggenheim Sons and Guggenheim Exploration Co.; development and equipment of the Nevada Consolidated Copper Co.; development and administration of the Steptoe Valley Smelting and Mining Co., of the Chile Exploration Co. and of the Braden Copper Co. of Chile. Of the Braden and Chuquicamata mines in Chile, he has been in charge from their earliest stages.

JAMES F. KEMP.

Born New York City, August 14, 1859.

Educated, Amherst College, A.B. 1881; School of Mines, Columbia University, E.M., 1884. Studied abroad at Leipzig and Munich one year.

1886-1891.—Instructor and later Assistant Professor of Geology at Cornell University.

1891-1892.—Adjunct Professor of Geology, Columbia University.

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1892-1917.—Professor of Geology, Columbia University—chief work was in the School of Mines and with graduate students.

1896-1899.—Manager, American Institute of Mining Engineers.

1903-1905.—Vice-President, American Institute of Mining Engineers.

1908.—Director, American Institute of Mining Engineers.

1912.—President, American Institute of Mining Engineers.

1915.—Elected Honorary Member of A. I. M. E.

1905-1909.—President, N. Y. Academy of Science and various other offices. Fellow, N. Y. A. S.

1905-1908.—Councillor, Geological Society of America.

1913.—First Vice-President above Society.

1900.—Vice-President, American Association for the Advancement of Science. Fellow, A. A. A. S.

1908.—Charter member, Mining and Metallurgical Society of America.

1912-1915.—Member of Council, Mining and Metallurgical Society of America.

1913-1915.—Member of Executive Committee, Mining and Metallurgical Society of America.

1914.—President, Mining and Metallurgical Society of America.

1916.—Awarded the annual gold medal of the M. & M. Society for distinguished service in advancement of the science of Economic Geology.

Honorary degrees: D.Sc., Amherst, 1906; L.L.D., McGill, 1913.

Associate Editor, *Zeitschrift für prakt. Geologie*, School of Mines Quarterly and *Economic Geology*.

Special Contributor, *Engineering and Mining Journal* and *Mining and Scientific Press*.

Manager, Scientific Director and Secretary to Board of Scientific Directors, N. Y. Botanical Garden.

Consulting Geologist to the N. Y. City Board of Water Supply.

Member: National Academy of Science, American Philosophical Society, National Geographic Society, American Geographical Society, Washington Academy of Sciences, Washington Geological Society, American Institute of Mining Engineers and Mining and Metallurgical Society of America.

Corresponding Member: Christiania Academy of Sciences, Norway; Geological Society of Stockholm, Sweden; Canadian Mining Institute.

JAMES DOUGLAS.

Born, Quebec, November 4, 1837.

Educated, Queen's University, Kingston, Canada, A.B., 1858; continued studies, University of Edinburgh (Theology), and Morrin College, Quebec; also, studied medicine at Laval University, Quebec. He was licensed to preach but never ordained.

1864.—Managing Director, Harvey Hill Copper Co., Province of Quebec.

1870-1874.—Superintendent, Chemical Copper Co., Phoenixville, Pa.

Since 1882, interested in mining and railroad enterprises in Arizona and Mexico; President and General Manager, Copper Queen Consolidated Mining Co., Detroit Copper Mining Co., United Globe Copper Co., Nacozari mines in Sonora, Mexico; President, Commercial Mining Co.,

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Moctezuma Mining Co., El Paso and Southwestern R. R., Nacozari R. R., Morenci Southern R. R., Phelps Dodge & Co.

1897-1898.—Vice-President, American Institute of Mining Engineers.

1899-1900.—President, A. I. M. E.

1900.—Delegate of the United States to Mining Congress, Paris.

1905-1913.—Director, A. I. M. E.

1906.—Elected Honorary Member of A. I. M. E.

1906-1911.—Vice-President, Board of Directors of A. I. M. E.

1908.—Awarded Gold Medal of the Institution of Mining and Metallurgy.

1915.—Awarded the John Fritz Medal for notable achievements in mining, metallurgy, education and industrial welfare.

Honorary degree: L.L.D., McGill University, 1899.

Inventor of metallurgical equipment and processes for the extraction of copper from ores.

Author: Canadian Independence, Annexation and Imperial Federation; Untechnical Address on Technical Subjects; Old France in the New World; New England and New France; The Influences of the Railroads of the United States and Canada on the Mineral Industry; and others. Also, many technical papers.

Member: American Academy of Political and Social Science; American Geographical Society; Am. Electro-chemical Society; Am. Inst. of Mining Engineers (Hon.); Am. Museum of Natural History (Trustee since 1914); Am. Philosophical Society; Canadian Mining Inst. (Patron); Franklin Institute; Inst. of Mining and Metallurgy (Br.); Iron and Steel Inst.; N. Y. Historical Society; N. Y. Zoological Society; North of England Inst. (Br.); Society of Arts (Br.).

COUNCIL.

Meeting January 8, 1918.

At the call of the President, a meeting of the Council of the Mining and Metallurgical Society was held at the Engineers' Club, New York, on January 8, 1918, at 5:15 p. m., shortly after the adjournment of the annual meeting of the Society. Mr. W. R. Ingalls, the president, presided, and the following Councillors were present: Messrs. Catlin, Channing, Kirby and Sharpless.

The Secretary reported that the minutes of the previous meeting had already been submitted to the Councillors, and that no alterations or additions had been suggested. On the other hand, the Secretary called attention to one correction which, if agreeable to the Council, would be made. The Council, on motion, gave its approval.

War Taxation on Mines.—The Secretary reported that he had written, as instructed by the Council, to both Mr. Callbreath

and Mr. Jennings with reference to the War Excess Profits Tax Law in its relation to the mining industry, and further stated that replies had been received from both of these gentlemen expressing their willingness to co-operate and to keep the Council informed as to the situation in Washington. Some discussion followed, and Mr. Channing told the meeting that from information received by him no radical changes in the law were likely to be made, and that if made it would not be until many months in the future. Messrs. Ingalls, Catlin and Kirby participated in this discussion, but no action was taken in the matter.

American Committee of Engineers in London.—A letter together with a certain memorandum, which had been received from Mr. Purington, Honorary Secretary, was thereupon submitted by the Secretary. This memorandum was entitled, "Project for increasing grain and food products in Eastern Siberia," and Mr. Purington called on the Society for its views on the matter, and to undertake the preparation of a final report. On motion, properly seconded, and carried, the Secretary was instructed to advise Mr. Purington, that a committee would be appointed to take the matter under consideration.

American Society of Testing Materials.—The Secretary announced that a communication had been received from Mr. Edgar Marburg, secretary of the American Society for Testing Materials, and that a report, "Magnification Scales for Micrographs" had been received at the same time. In his letter, Mr. Marburg requested the co-operation of the Mining and Metallurgical Society, and invited criticism. The President instructed the Secretary to bring this matter before the Committee on Standardization.

National Security League.—The Secretary having informed the meeting that the National Security League had formally invited the Society to appoint delegates to the "Congress of National Service," on motion duly seconded and unanimously carried the Secretary was requested to notify the League that the Society considered that the matters to be brought before the Congress were beyond its province, and that it believed it inexpedient to appoint delegates.

Resignations.—The Secretary reported having received the resignation of Messrs. Benjamin, d'Invilliers, Garrison and Shockley.

New Members.—The Secretary reported that Ballot No. 73 had been counted on January 4, and that the Council had by unanimous vote elected Messrs. G. T. Bridgman, Rowland F. Hill and O. C. Martin to membership, and that furthermore these gentlemen had been notified of their election.

Membership.—The Secretary submitted the following schedule showing the condition of the membership on January 8:

	Dec. 10	Jan. 8
Membership January 1, 1917	282	282
Members elected since January 1, 1917	24	27
	<hr/>	<hr/>
	306	309
Members resigned	2	7
Members deceased	2	3
	<hr/>	<hr/>
	302	299
Applications before Council	3	—
Applications before Members	6	6
Applications before Executive Committee	1	3
Applications in office	2	4
	<hr/>	<hr/>
	314	312

Honorary Membership.—The Secretary reported that the ballot for the election of Dr. James Douglas as an honorary member of the Society was polled on January 4, and that the Council had by an unanimous vote elected Dr. Douglas.

The meeting thereupon adjourned at 5:45 p. m.

EDWARD B. STURGIS,
Assistant Secretary.

Meeting of January 22, 1918.

A meeting of the Council of the Mining and Metallurgical Society was held, at the call of the President, on January 22, 1918, at 12 noon, at the offices of the Society. For reasons of weight, the 10-day notice was waived in this case. Mr. W. R. Ingalls, the President, was in the chair, and these other Councillors were present: Messrs. Channing, Huntoon, Penrose and Yeatman. Mr. Kirby was delayed and did not reach the office until after adjournment.

Election of Councillor.—As the first business before the meeting, the chair called attention to the vacancy in the Council due to the election, on January 8, of Mr. Channing to the vice-presidency of the Society. At this time, Mr. Channing, whose position as councillor would not have terminated until

1920, automatically became a member of the Council. Nominations were called for, and after some little discussion, Mr. Sharpless became the nominee by unanimous choice, and was duly elected Councillor to serve for one year.

Executive Committee.—The chair then called for two nominees to complete the membership of the Executive Committee, the three officers of the Society being ex-officio the other members, F. F. Sharpless and P. Yeatman were the only nominees, and they were elected.

War Income Tax.—The resolution proposed by A. H. Rogers, at the evening session of the annual meeting, was then brought to the attention of the Councillors; it reads as follows:

That it is the sentiment of this meeting that the tax of 8 per cent. on professional incomes in excess of \$6,000 per annum is an injustice and that the Council be advised of the same and be asked to take such action as it may deem proper.

The President then stated that perhaps a referendum of the entire membership should be taken on a resolution of this character, and that such a resolution, constitutionally, should not even perhaps have been presented at a meeting not specifically called for the purpose. There was considerable discussion as to whether the text of the resolution properly indicated its intent, and finally a motion was made, seconded and duly passed.

“That a new resolution, based on that of Mr. Rogers’ should be prepared by the Council and referred to the membership for letter ballot.”

Honor Roll.—The Secretary submitted a letter received from Assistant Secretary of War Crowell replying to an inquiry, in accordance with instructions from the President, as to the propriety of including the rank and regiment of members in the honor roll, as published in the BULLETIN. In the opinion of Mr. Crowell, the list as printed would not give comfort to the enemy.

Bulletin.—Five estimates for printing the BULLETIN for the current year were next submitted to the meeting. After considerable discussion, the Secretary’s recommendation in the matter was adopted and he was authorized to contract for the printing of the BULLETIN and the Year-book for 1918.

LOUIS D. HUNTOON,
Secretary.

OBITUARY.

WILLIAM HAGUE.

Born in Orange, New Jersey, March 31, 1882, William Hague finished his schooling at Milton Academy, in Massachusetts, and entered Harvard in 1900. There he received the degrees of Bachelor and Master of Arts, specializing in mining and geology.

For four years after graduation he held a number of subordinate positions, notably with the Copper Queen Consolidated Mining Co., until in December of 1908 Hague became managing director of the North Star Mines Co., operating at Grass Valley, California. This position he held until September, 1916, when he entered the officers' training camp at Plattsburgh, and received his commission.

On or about December 1, last, Lieutenant Hague departed for France, where he died of pneumonia on January 2.

(The above notice prepared from the only data available at this time, gives but a few bare facts in the life of the late Lieutenant Hague. This will be followed, however, by a fuller and more appreciative record in a subsequent number of the Bulletin.)

MEMBERS ELECTED IN JANUARY.

Bridgman, G. Temple.....	120 Broadway, New York
Ass't Consulting Mining Engineer, Guggenheim Bros.	
Hill, Rowland F.....	32 West 40th St., New York
Mgr. Min. & Met. Dept., General Chemical Co.	
Martin, O. C.....	549 Walnut St., Richmond Hill, N. Y.
Works Mgr., Nichols Copper Co.	

CHANGES OF ADDRESS.

Ball, S. H.....	42 Broadway, New York
Hutchins, J. P., c/o Am. Inter. Corp....	120 Broadway, New York
Mayer, Lucius W.....	42 Broadway, New York
Van Wagenen, Hugh R., c/o A. H. Rogers.	42 Broadway, New York

PERSONALS.

Howland Bancroft arrived in New York on January 10, and will remain in the East for about three weeks. He has been investigating the tin situation.

Albert Burch is the California member of the committee representing mining, oil and gas industries, which, in connection with

the American Mining Congress, has submitted to the Bureau of Internal Revenue suggestions for an amendment to the Excess Profits Tax Bill where it relates to these industries.

John V. N. Dorr, who left New York on January 5, was absent on business for about three weeks.

James Douglas has again agreed to donate \$500,000 to Queen's University, in Kingston, Ontario, in case an equal amount is obtained from other sources. Dr. Douglas is chancellor of this university.

James S. Douglas, who as already announced is now in France assisting the American Red Cross, holds a major's commission.

Walter Douglas, Stanly A. Easton, H. O. Hofman, J. P. Hutchins, F. F. Sharpless and George C. Stone are among those who have assisted in the compilation of the annual statistical number of the *Engineering and Mining Journal*. In a later issue of this periodical, George E. Collins contributes his share to the statistics for the year 1917.

Herbert C. Hoover received on January 18 the gold medal of the National Institute of Social Sciences which, according to constitutional provision, is awarded for "distinguished services rendered to humanity."

James F. Kemp, who has recently been in Texas on professional business, was in New York one week ago to attend the wedding of his son. He will return to Texas.

C. H. Macnutt, lieutenant of Canadian Engineers, is now on service in England. He returned only recently from his duties in Flanders.

B. Magnus has been absent from his New York office during the month of January. He has been making professional visits in a number of western states.

Joseph Hyde Pratt, who has been promoted to the lieutenant-colonelcy of the 105th Engineers, is stationed at Camp Sevier, Greenville, So. Carolina.

M. L. Requa, who has been associated with the Food Administration, according to a recent announcement, is to be in charge of an oil division of the Fuel Administration.

John Roger's name appears as author on the title-page of a privately printed volume. In "Heat," Mr. Roger introduces certain new conceptions regarding specific heat.

Allen H. Rogers left for British Columbia shortly after his attendance at the annual meeting. He expects to be absent until about February 15.

George Otis Smith, who has been ill with typhoid, is again back at his desk.

Whitman Symmes was in New York in time for the annual meeting. He has since gone west via New Orleans, with San Francisco as his destination.

J. B. Tyrrell has received by award from the British Geological Society its Murchison medal.

Hugh R. VanWagenen is reported to be in Tonopah in the matter of a law suit between two mining companies.

William Young Westervelt, on behalf of the War Minerals Committee, of which he is chairman, analyzes the pyrite situation and gives statistics for this mineral in 1917, in the *Engineering and Mining Journal* for January 12. In the January 19 issue of this journal, Mr. Westervelt makes public the principal features of a proposed bill authorizing in part government control of the mining industry.

O. R. Whitaker, during the past year, has been making a survey of the smelting industry of Colorado. His report of this investigation, which was authorized by the state legislature, is to be issued shortly.

George J. Young, recently reported to have accepted a staff position on the *Mining and Scientific Press*, has become assistant editor-in-chief of the *Engineering and Mining Journal*.

MEMBERS OF THE SOCIETY WHO HAVE BEEN CALLED INTO THE SERVICE OF THE U. S. GOVERNMENT AND THE ALLIED ARMIES.

Lawrence Addicks.....	Member, U. S. Naval Consulting Board
Percy E. Barbour.....	Capt., Reserve List, N. G., N. Y.
Edwin S. Berry.....	Capt., 27th Engineers, N. A.
Alfred H. Brooks.....	Major of Engineers, U. S. A.
Reginald W. Brock.....	Major in Canadian forces
Gelasio Caetani.....	Capt., 1st Reg. of Engineers, Italian Army
Will L. Clark.....	Federal Fuel Administrator, Arizona
Welton J. Crook.....	Officers' Reserve Corps
Benedict Crowell.....	Major of Ord.; Asst. Secretary of War
W. B. Devereux, Jr.....	Capt. of Aeronautics, U. S. A.
J. S. Douglas..	Maj. and Dir. Warehouses, American Red Cross
A. S. Dwight.....	Major, 11th Engineers (Ry.), U. S. A.

Baird Halberstadt.....Fed. Fuel Admin'tor, Schuylkill Co., Pa.
 W. L. Honnold.....Am. Dir., Com. for Relief in Belgium
 Herbert C. Hoover.....U. S. Food Administrator
 John D. Irving.....Capt., 11th Engineers (Ry.), U. S. A.
 D. C. Jackling.....Powder Plants and Mfg., War Department
 Woolsey McA. Johnson.....Trade Expert, War Trade Board
 Donald M. Liddell.....Chief Eng., War Credits Board
 Charles W. McMeekin.....Major of Engineers, U. S. R.
 C. H. Macnutt.....Lt. of Engineers in Canadian forces
 C. W. Merrill....Div. of Chemicals, U. S. Food Administration
 H. G. Moulton.....Engineer, War Industries Board
 Seeley W. Mudd.....Major of Engineers, U. S. R.
 O. B. Perry.....Major, 27th Engineers, N. A.
 Joseph Hyde Pratt.....Lt. Col., 105th Engineers, N. A.
 A. L. Queneau.....late of the French army
 M. L. Requa.....Chief of Oil Div., Fuel Administration
 Edgar Rickard.....U. S. Food Administration
 W. L. Saunders.....Chairman, U. S. Naval Consulting Board
 Millard K. Shaler.....Hon. Sec., Com. for Relief in Belgium
 S. C. Thomson.....War Export Board
 Arthur L. Walker.....Con. Met. to Chief of Ordnance, U. S. A.
 William Young Westervelt.Chairman, War Minerals Committee
 Pope Yeatman.....Con. Engineer, War Industries Board

DIED IN THE SERVICE OF HIS COUNTRY.

William Hague.....January 2, 1918

Mining and Metallurgical Society of America

Vol. XI No. 2

February 28, 1918

Bul. 117

ANNOUNCEMENTS.

New York Section.—On February 14, a meeting of this Section took place at the Columbia University Club. Immediately after the usual informal dinner, Mr. H. H. Knox, Chairman, introduced Mr. Simon Lake, the speaker of the evening; Mr. Lake, it will be remembered, is one of the inventors of the submarine. A short report of this meeting appears on another page in this issue.

Annual Medal.—Formal notice has been sent to the members that the gold medal for 1918 will be presented to Pope Yeatman on Thursday, March 21, 1918, at the Columbia University Club, 4 West 43d Street. The committee on arrangements, of which H. H. Webb is chairman, has planned a dinner for this evening for seven o'clock, at the price of \$5.00 per cover. The Secretary's office should be promptly advised by those members who intend to be present.

Government War Service.—Announcement has been made that a small part of the "Comfort Fund" has been expended to equip Company A of the 27th Engineers, with tobacco, games and athletic goods.

This same announcement states that the "Association of the 27th Engineers" has been formed to administer the affairs of this fund. Lieut. Col. O. B. Perry, Arthur J. Baldwin and W. R. Ingalls are respectively, President, Vice-President and Secretary-Treasurer of the association. It should here be noted that, in the future, checks should be drawn to the order of Mr. Ingalls instead of as heretofore to the *Engineering and Mining Journal*.

Members are once more urged to contribute to this fund, which is to be devoted entirely for the benefit of this newly organized mining regiment, the 27th Engineers. According to latest accounts, total contributions to this fund amount to something

over \$8,000, but, as has been pointed out, it may reasonably be presumed that a sum as large as \$100,000 should be made available.

Explosives Bill.—This act, restricting manufacture and distribution of explosives in time of war, approved on October 6, 1917, has been referred to on a number of occasions in these pages. For the benefit of the membership, it should perhaps be announced that the regulations issued by the U. S. Bureau of Mines with reference to this legislation, appear in the *Engineering and Mining Journal* in its issue of February 23.

Bound Volumes.—Members are requested to place their orders for bound volumes of the BULLETIN at their very earliest convenience.

The Secretary is glad to report that his request for back numbers of the unbound volumes is receiving a hearty response. The need of recalling unbound volumes has been recently emphasized: Lieutenant Colonel O. B. Perry has sent in his order for 100 copies of the December BULLETIN, which contains the paper by Major Rousseau on mining warfare. Here, a reprinting of this issue has been possible, which is not, however, the case as a general thing.

Changes of Address.—The time is fast approaching when a new year-book of the Society will be issued. As this publication contains a list of the members in addition to the constitution and by-laws of the Society, and as it is the desire of the Secretary to make the list of members as nearly correct as possible, the membership is especially urged to make note, and forward to this office, changes of address which have not as yet been made available. The Secretary will also be grateful if the members will advise him of any other alterations which will in any way make the year-book more useful.

WAR TAX LAW.

Excess Profits Tax.—As reported in the January BULLETIN, A. H. Rogers, at the evening session of the annual meeting of the Society, called attention to the injustice of assessing an extra war revenue tax on professional incomes. This was followed by a very considerable discussion, which finally resulted in the passing of a resolution, offered by Mr. Rogers, reading as below:

That it is the sentiment of this meeting that the tax of 8 per cent. on professional incomes in excess of \$6,000 per annum is an injustice and that the Council be advised of the same and be asked to take such action as it may deem proper.

In accordance with this resolution, the Council on January 22, passed a motion, as announced on page 60 of the same BULLETIN, as follows:

That a new resolution, based on that of Mr. Rogers' should be prepared by the Council and referred to the membership for letter ballot.

This action was determined upon because it was deemed proper that the entire membership should be consulted in a matter of this importance.

The Executive Committee thereupon prepared the new resolution, which, having been approved by Messrs. Douglas, Armitage and McCann, Counsel for the Society, will be referred to the membership for ballot. It is here repeated:

The members of the Mining and Metallurgical Society of America respectfully call attention of Congress to the unfairness of the supertax on professional incomes imposed by section 209 of war revenue act approved Oct. 3, 1917.

Much might be said in favor of a lower income tax on incomes from professions than upon incomes from investments. But there has been no disposition on part of the mining and metallurgical profession to object to the payment of the same income tax as is paid by others, or indeed to any plan of taxation under which engineers are called upon to bear their fair share of the burdens.

It seems, however, unjust that incomes from the practice of any profession, whether engineering, legal, medical, or otherwise, which are the result of personal effort, and which provide not only for the current support of the professional man, but also the saving for his old age, should be subject to a heavy supertax, so that the professional man who works for his income is in a worse position than the idle man receiving his income from invested wealth.

Therefore the members of the Mining and Metallurgical Society of America respectfully urge that section 209 of the war revenue act be repealed.

Income Tax.—For the information of the members, it would seem proper to call their attention to the fact that that part of Regulation No. 33, issued by the U. S. Internal Revenue Department, relating to the mining industry as affected by the Federal Income Tax, is reprinted in the *Engineering and Mining Journal* of February 9. This will perhaps prove of convenience to those who have not had other access to this information.

In this connection, reference may also be made to the January BULLETIN, where, under the same heading, may be found a memorandum, from the counsel of the Society, relative to the Federal Income Tax.

OTHER SOCIETIES. ENGINEERING COUNCIL.

Below will be found the first official published statement of the formation, purposes and scope of the Engineering Council. Particular attention is called to the second paragraph which gives a concise definition of this organization.

It will be noted with satisfaction that membership in the Engineering Council is not to be restricted to the four founder societies. This is undoubtedly the wise position to take if the Engineering Council is to truly represent the entire engineering profession. Already, some of the committees authorized by the Engineering Council include representatives from societies other than the four largest ones. Thus, it will be remembered, and as is indicated in what follows, the Mining and Metallurgical Society is represented in the American Engineering Service and on the War Committee of Technical Societies.

This statement of the Engineering Council seems, to the Secretary, of such importance as to warrant its publication in its entirety on the pages of the BULLETIN. For, if the Engineering Council remains true to its aims and purposes, it may be supposed with reason, that it will become the real centre of all engineering activities.

OFFICERS AND COMMITTEES FOR 1918.

Progress, Field and Aims.

Engineering Council held its first meeting June 27, 1917. In the months which have elapsed, useful services have been rendered to the Government, to engineering societies and to individuals, and progress has been made in perfecting Council's organization. Offices have been secured in the Engineering Societies Building, New York City, the focus of engineering activities in America. A permanent executive officer, with the title of Secretary, who has been engaged, entered upon his duties January 1, 1918. Several important committees have been created and have accomplished much.

Engineering Council is an organization of national technical societies of America created to provide for consideration of matters of common concern to engineers, as well as those of public welfare in which the profession is interested, in order that united action may be made possible. Engineering Council is now composed of the American Society of Civil Engineers, American Institute of Mining Engineers, American Society of Mechanical Engineers and American Institute of Electrical Engineers, having a membership of 33,000 and known as the Founder Societies.

February 21, the first annual meeting was held. The following officers were elected: Chairman, J. Parke Channing; First Vice-Chairman, Harold W. Buck; Second Vice-Chairman, George F. Swain; Secretary, Alfred D. Flinn. Committees were appointed as follows: Executive Committee, the

Chairman, the two Vice-Chairmen and David S. Jacobus, Calvert Townley, George J. Foran; Finance Committee, E. Wilbur Rice, Jr., Chairman, Charles F. Loweth, Sidney J. Jennings, David S. Jacobus; Rules Committee, J. Parke Channing, Chairman, Clemens Herschel, Nathaniel A. Carle, Irving E. Moulthrop; Public Affairs Committee, Charles Whiting Baker, Chairman, George F. Swain, Benjamin B. Thayer, E. W. Rice, Jr., Charles E. Skinner; American Engineering Service, George J. Foran, Chairman, George C. Stone, Alfred D. Flinn, Addams S. McAllister, Edward B. Sturgis (M. and M. Society), Secretary; War Committee of Technical Societies, D. W. Brunton, Chairman, Arthur H. Storrs, Secretary, James M. Boyle, Nelson P. Lewis (American Society of Civil Engineers), Edmund B. Kirby (American Institute of Mining Engineers), A. Greene, Jr., R. N. Inglis (American Society of Mechanical Engineers), Harold W. Buck, Dr. Addams S. McAllister (American Institute of Electrical Engineers), Dana D. Barnum, E. C. Uhlig (American Gas Institute), Joseph Bijur, Dr. Chas. A. Doremus (American Electrochemical Society), Louis B. Marks, Preston S. Milar (Illuminating Engineering Society), Christopher R. Corning, George C. Stone (Mining and Metallurgical Society of America), Henry Torrance, F. E. Matthews (American Society of Refrigerating Engineers); Fuel Conservation Committee, L. P. Breckenridge, Chairman, Ozni P. Hood, Secretary, Robert H. Fernald, Charles R. Richards, Charles L. Edgar, Carl Scholz, David Moffat Myers, Edwin Ludlow, Harold W. Buck.

A Patents Committee, to investigate reforms in the U. S. patent system and in the use of experts in litigation wherein the validity of patents or other technical matters are involved, was also created, but the names of its members cannot yet be announced. The committee was instructed to co-operate with any committee of the National Research Council, and with committees of other technical societies organized for a kindred purpose.

Limitation of financial resources has been and still is one of the greatest handicaps. At the beginning of this year, an appropriation of \$16,000 by United Engineering Society, contributed equally by the four Founder Societies became available for the period ending October 31, 1918. Although this sum provides for the usual expenses of the secretary's office, for inaugurating several permanent lines of service and for a few special items in connection with the war, it is far from adequate. Engineering Council is still forced to go slowly on work already undertaken and to decline or defer other meritorious projects. That Engineering Council has accomplished as much as it has is due chiefly to the fact that individuals, societies and Government bureaus have informally contributed services and means. Additional income must be had if Engineering Council is to bring to pass within a reasonable time many of the things rightfully expected of it for the benefit of professional engineers, the country, the Government and the public.

Restriction of membership in Engineering Council to the four societies just mentioned is not intended. Quite to the contrary, it is planned and earnestly desired that other national engineering and national technical societies shall become affiliated, thus making Engineering Council truly representative of the hundred thousand engineers in all branches of the profession throughout the United States. Conditions and methods for the admission of additional societies have been developed. Henceforth, a chief aim of Engineering Council will be to increase the number of member societies and thus gain not only an enlargement of its capacity for usefulness along its chosen lines, but also greater technical and financial support.

So extensive is the field of possible activity for Engineering Council that even yet it is unwise to set its bounds. Nevertheless, some of the proposed activities may now be outlined. Foremost among these is the fostering of a sense of solidarity throughout all divisions of the profession in all parts of the country—the increasing of a sense of common interest and of the strength that results from unification. To this end, subordination to the general welfare of the preferences and pride of organizations and of persons may be necessary; but it is confidently expected that even through difficult places the right paths will be found. Patience and good sense will win full and effective co-operation. Publicity of a high order, but of a practical sort, must be devised that both engineers and the public may be informed not only of engineering achievements in physical work, but also of the services which peculiarly pertain to engineers, in mental realms, those which they are performing and those which they should perform. Engineers and engineering must be made more comprehensible to the people up and down the land, and kept instructively and interestingly in the public prints. A most important service is the standardization of definitions, methods, requirements and tests for all varieties of engineering materials and work. Others are the improvement of the methods and requirements of engineering colleges, the standardizing of the meanings and values of the degrees given to graduates, and the broadening of the engineer through knowledge of humanitarian subjects, in which other professional men take interest.

Mutual helpfulness in getting the right engineer for the empty niche of usefulness and in finding an empty niche for the unemployed engineer, or for the one seeking advancement, has for years been a need of engineering societies, widely voiced, especially by the younger men. Many endeavors have been and are being made to meet this need, with more or less success; but most of them have been limited. Engineering Council has already given this matter much thought and has put it in the hands of the American Engineering Service, one of its committees. To meet these demands this committee has been assembling in its offices in the Engineering Societies Building, New York, comprehensive lists and much detailed information concerning engineers in all branches of the profession. During the past few months, there have been supplied to Government departments and bureaus several thousand names of engineers, from which men were selected to fill a great variety of positions in uniformed and civilian service for the Army, the Navy and other branches of the Government's activities in connection with the war, as well as for manufacturers and contractors engaged upon Government war work. Hitherto, these war demands have absorbed most of the energies of this committee and its staff, but incidentally there have been accumulated great masses of live material which can in the near future be re-cast into a suitable mold of classification and indexed for permanent use. On methods of classifying and indexing the committee has already done not a little work. It is the intention to discover what has been done by others and so as to combine and strengthen all useful systems as to secure the greatest benefits for engineers, for employers and for local, state and national governments. It is the aim ultimately to create a complete, skilfully classified catalog of all American professional engineers. This body of information will have many obvious uses, as well as others that will be discovered.

It has become evident that although numerous engineering societies are occupying limited fields efficiently, and although some of these fields are extensive, there are large sectors of the domain of the engineer which are either but weakly held, or else are usurped by others. This condition has

arisen partly from specializing tendencies among societies as well as among individuals. Until the present time, there has been no central agency capable of entering these sectors and competent to speak for the profession at large—no duly constituted representative to learn of the share in local civic and governmental enterprises which should be the engineer's, to claim it for him, and to see that he gets it; no organization to harmonize the action of the profession on similar questions in different localities; no interpreter to the public of the engineer, his work, his ideals and his methods; nobody to develop meritorious projects for the general good of the profession or for the benefit of the public; no one constantly on guard to detect and oppose objectionable schemes and tendencies. To fill these gaps is the great aim of Engineering Council—not by demolishing any useful existing agencies, but by building these into a well proportioned and thoroughly furnished structure. Time will, of course, be required for erecting and perfecting such an organization with its necessary local branches covering all the United States.

Engineers are organizers and should be directing their abilities as such to the greater service of the nation. No better demonstration of the need of such a centralizing body as Engineering Council could be had than the multiplicity of existing engineering organizations, and especially the manifestation during recent months of this tendency to segregation exhibited in efforts to serve the Government in connection with the War. Order is slowly being brought into this confusion, but if Engineering Council could have been well established before the beginning of the war, it would have become at once the connecting link between the Government and engineers, securing results quickly, directly, economically and in an orderly manner. While contributing its best endeavors to the winning of an early and complete victory, Engineering Council must be shaping its organization so as to be prepared to aid engineers in taking the leading part which must be theirs in the years following the conclusion of peace.

Unselfish service and mutual helpfulness must be the test requirements for all the undertakings of Engineering Council. Offensive political or business activities must be avoided and the selfish aims of groups or individuals must not be fostered. If the work roughly outlined be carried forward in this spirit, no fear need be entertained for the profession's ethics, its honor, or the standing of the engineer in the community.

ALFRED D. FLINN,

Secretary, Engineering Council.

Below will be found the representatives on the Engineering Council, as of February 25:

Amer. Society of Civil Engineers.

Charles S. Churchill
George F. Swain
F. H. Newell
Alex. C. Humphreys
C. F. Loweth

Amer. Inst. of Mining Engineers.

P. N. Moore
Sidney J. Jennings
Benjamin B. Lawrence
J. Parke Channing
Edwin Ludlow

Amer. Soc. of Mechanical Engineers.

Ira N. Hollis
Charles Whiting Baker
George J. Foran
Charles T. Main
D. S. Jacobus

Amer. Inst. of Electrical Engineers

Harold W. Buck
E. W. Rice, Jr.
N. A. Carle
Comfort A. Adams
Charles E. Skinner

United Engineering Society

Clemens Herschel
Benjamin B. Thayer

I. E. Moulthrop
Calvert Townley

War Committee of Technical Societies.—This committee of the Engineering Council, which as already reported in the January BULLETIN, has become more active during the past few months. This perhaps is largely due to the diligence and earnestness of its Chairman, D. W. Brunton, but also its work has been materially facilitated by the fact that it has been taken under the wing of the Naval Consulting Board. This is true to the extent that the War Committee of Technical Societies has offices at 15 Park Row adjoining those of the Naval Consulting Board, and that its stationery now carries the name of this Board.

American Engineering Service.—What follows, comes from Mr. Alfred D. Flinn, Secretary of Engineering Council, and is printed here by request to assist in giving the subject in question the widest possible publicity. It will be understood that, to avoid supplying the Government with the names of engineers already in service, the information asked for by this notice is absolutely essential.

ENGINEERS IN GOVERNMENT SERVICE.

Engineering Council, through its American Engineering Service Committee, has during the past few months supplied to various Government departments and bureaus in response to their requests, several thousand names of engineers from which men were to be selected to fill a great variety of positions in uniform and civilian service for Army and Navy and other branches of the Government's activities in connection with the war, as well as for indirect service for manufacturers and contractors engaged upon Government war work.

To meet these demands the American Engineering Service Committee has assembled in its offices in the Engineering Societies Building, New York, extensive lists and much detailed information concerning engineers in all branches of the profession throughout the length and breadth of the land. It will readily be appreciated that if these lists are to be maintained in the most useful condition to the Government and to Engineering Council, the committee should receive promptly, information concerning each engineer who has gone into any kind of Government service, direct or indirect, so that a record may be made on his cards in the committee's office.

Engineers reading these lines, to whom this request applies, are urged to send at once their names, present addresses and occupations in the Government service, with brief statement as to whether or not they are available for other service, to American Engineering Service Committee, Room 901, 29 West 39th Street, New York City, N. Y. Other readers are asked to bring this request to the attention of such engineers or to send information directly to the committee.

As will have been noted in the statement of the Engineering Council above, funds have been made available, within the past few months, for some of its activities. These naturally include the classification of engineers, for which purpose the American Engineering Service was organized by the Council. Heretofore, this service has been seriously handicapped for lack of financial help, although, as Mr. Flinn has pointed out, substantial headway has been made in spite of this difficulty.

COMMUNICATIONS.

FROM THE FRONT.

We feel certain that the members of the Society will be grateful to the recipient of a letter from a fellow member for permission to print the extract of it which appears below. This short chronicle of events, taking place in France, comes under date of January 21.

We have only recently been receiving the New York papers of early December, in which our Regiment seems to have received much favorable mention. The stories were, in the main, true. Our men behaved themselves creditably, and certain of the officers received special mention for valor. Two of our Second Lieutenants were promoted to First Lieutenant rank by special order of General Pershing for "Gallant conduct in action," and about four others would have been decorated by the British, if our laws permitted the acceptance of foreign decorations. It is too bad that it is so, for the British were very keen to do it, and as such honors go, these were well earned. The Senior U. S. officer present was the Senior Captain of my battalion, who was there with the bulk of his Company, with some detachments from two companies of the Second Battalion. He was cited for going through the barrage three times to bring back groups of his men who were caught out along the track. The shortest man in the Regiment is a little 2nd Lieut. (one of those promoted), who was struck in the head with a bullet which went clean through both sides of his steel helmet, and chipped the upper edge of his forehead on the way. If he had been one quarter of an inch taller, it would have finished him. He is now back from the hospital. He was hit while going down the track to collect his men. While he was being led back to the dressing station, his only comment was an order to one of the men to go back and "get that tin hat, 'cause I want to keep it." He was put on a stretcher at the dressing station, and loaded on a narrow-gauge rack-car to be transported to the C.C.S. (casualty clearing station), and while lying there a Boche aeroplane swooped down over the village and peppered everything in sight with a machine gun, he lying on his back looking right up at it as it passed directly over him, and shot down six Tommies just across the street. Another of our men, a Corporal, was wounded in three places before he got to the ambulance, and then as he lay in the ambulance, got another bullet through the arm from an aeroplane; probably this same one. A story had reached us through the Tommies, that one of our men who was found dead in the field from the bayonet

wounds, had three dead Germans in front of him, killed by the railroad pick he had wielded valiantly. A wounded British officer reported that two of our men had been shot down while carrying him off the field, but we have never been able to find these men; perhaps they were only wounded and carried away as prisoners. There were ten wounded and eighteen missing; of whom we have since accounted for three as killed and one a prisoner in Germany. Since that, things have been pretty quiet, though we have had a little excitement with aero-bombing parties now and then. Really the fuss that has been made over our little incident is out of all proportion to the serious things going on all about us all the time, and hardly given a second mention, so it makes us feel a little embarrassed. Of course, this incident was given prominence because it was one of the first encounters in which American troops took part, and more particularly as they were popularly supposed to be not trained for fighting (though they are, only they didn't have their guns with them on the work that day). But we run up against British officers every day who have come out of engagements with a mere handful of men; the remnant of a company or battalion, and some of them have done it several times over. Nothing at all is made of it, for it is an old story with them. We do not know yet, nor can our public comprehend what it all means. It is as yet only a sort of thrilling moving-picture show. But there is no use talking, it is a great old show, even in the calm times like the present, and a trip along the road between my camp and the front gives one glimpses of men and things that would adorn many a tale if one had the pen to describe them, and old Mr. Censor would permit.

When a little more time is passed, it may be proper for me to send you an account of what I saw the day of the "big push," when I followed out in the path of the tanks to a point way beyond the Hindenburg line, with the British batteries coming into position and banging away over my head, the German trenches full of Tommies in reserve, the thickets of barbed wire entanglements either tramped under foot by the steel monsters or torn up by the roots, by their huge derricks, the pioneers clearing the felled trees from the highways and finally the thrilling sight of the Cavalry and the Indian Landers going out to battle, many, many thousands of them; their day, for which they had waited for three years! That was the day we got busy, and proceeded with the work we came here to do, that is the special job we had been scheming for and dreaming of at night, and wondering which of the Companies would be the lucky ones to be on the work. Well, we did the trick, and connected up with the ends of the Boche railroad tracks. This, so far as I know, never has been mentioned in any of the accounts, but to me is the real thrilling point to the whole episode, so far as our Regiment's achievements are concerned, for, for the first time in three years, there was through rail connection established from Paris to Berlin! What more could we do to win the war? A fine straight road, but no one had the nerve to travel it! Well, that road lasted just about eighteen hours. There are a lot of our tools out there yet that we can't recover, and perhaps some of the missing men, nobody knows.

The Secretary has received word from Major A. S. Dwight. On or about February 15, there arrived from France, his Christmas and New Year greetings. The card which brings these greetings is unusually attractive, and carries in addition to a U. S. shield, the name of his regiment, the symbol of the Engineer Corps and the motto "Essayons."

REPORT OF COMMITTEE ON STANDARDIZATION.

In December, the annual report of Committee E-4, of the American Society for Testing Materials, was sent to this office by Edgar Marbury, Secretary, with a request for criticism and co-operation in general. This report relating, in the main, to the preparation of micrographs of metals and alloys, was referred by the Council, at its meeting of January 8, to the Standardization Committee; its report follows:

Report of Committee E-4 of the American Society for Testing Materials, which deals with the magnification scales for micrographs, having been submitted by the Assistant Secretary of the Society to its Standardization Committee, said Committee has given the matter careful consideration and begs to advise that in its opinion it would be a proper and advantageous policy for the Society to endorse the proposed tentative definitions and rules governing the preparation of micrographs of metals and alloys set forth in said report of Committee E-4 of the American Society for Testing Materials.

Respectfully submitted,

New York City, N. Y.
January 18, 1918.

C. R. CORNING,
Chairman.

REPORT OF SPECIAL COMMITTEE.

Pursuant to a motion passed by Council on January 8, 1918, the President appointed S. H. Ball, Chairman, J. P. Hutchins and H. H. Knox, a special committee to consider and to report upon a "Project for increasing grain and food products in Eastern Siberia," submitted by the American Committee of Engineers in London, with the added designation "Plan No. 2."

This action of the Council was taken as a result of a request by C. W. Purington, Honorary Secretary of the A. C. E., in London, for assistance in the preparation of a final report on the above named subject. A lengthy memorandum, together with certain correspondence, which may be consulted at the office of the Society, accompanied Mr. Purington's request. The report of the special committee follows:

New York, Feb. 11, 1918.

The President,
Mining and Metallurgical Society of America,
New York City, N. Y.

Dear Sir:

Your committee herewith reports on Plan No. 2 of the American Committee of Engineers in London entitled, "Project for increasing grain and food production in Eastern Siberia."

Inasmuch as your committee is composed of mining engineers and not agricultural and food experts, it has some hesitation in reporting on this

matter. Your committee have, however, had the advantage of a conference with Mr. Lewis S. Palen who has for a long period been resident in a contiguous area and engaged in a related business.

First: Since the project demands for its full consummation a period of several years, it cannot be classed as a war measure, and therefore an argument for governmental support would certainly fail at a time when national activities are restricted to the single purpose of winning the war. This factor is emphasized by the magnitude of the sum, estimated at \$100,000,000, required by the project.

Second: On account of the political situation in Russia at the present time, and what your committee believes will be the economic situation in Russia within the next three or four years, no assistance could be expected from the Russian Government. In consequence, the financing would be thrown entirely on the American Government or upon the Allies.

Third: There are transportation difficulties both on land and sea. The railroad troubles are due to the internal conditions of Russia and these seem difficult of solution, as evidenced by the circumstance that the American Railway Commission is no longer in Russia. The same difficulties in a large measure exist, both as to rail and river steamer transport, in the part of Manchuria under consideration, as these transport systems are operated by Russians. The difficulties of sea transport are governed by the critical shortage of ocean tonnage.

Fourth: Your committee does not think that this is a matter which the American Government should take up for the following reasons:

(a) Any other than absolutely necessary organized activities by Americans in Russia, unless obviously and patently philanthropic or charitable, would better be avoided to prevent a suspicion of meddling in internal affairs of Russia and Siberia. Abortive attempts at food producing in Siberia or Manchuria would probably only result in friction between America and Russia and this should be avoided at all costs.

(b) Your committee believes that such a matter, if adopted by any government, should be taken up by the allied powers or by the European Governments which later will suffer the greatest food shortage.

(c) It seems adverse to the interests of the farming population of the United States to furnish money to grow foodstuffs abroad, for this would be alleged as fostering foreign competition with the American farmers and therefore this suggestion seems impractical from a political standpoint.

Your committee concludes, therefore, that the plan as outlined is impractical of operation and at least as presented, it considers it would be inexpedient to attempt to consummate it.

Respectfully submitted,

H. H. KNOX,
J. P. HUTCHINS,
S. H. BALL.

Chairman.

CRIPPLED AMERICAN SOLDIERS.

The Secretary's office is in receipt of a letter from Mr. Robinson Smith, of the American Committee of Engineers in Lon-

don, carrying date of January 12, which tells its own story and is therefore printed in full below:

Mr. Purington suggests that I write you asking your co-operation and advice in the matter of the useful employment of crippled American soldiers after their period of convalescence in hospital. The American Committee of Engineers in London have, through a sub-committee on crippled soldiers of which I am Chairman, been occupied with this matter for the last six months, and have unanimously come to one conclusion, which is simply that, if we are to keep our crippled soldiers from becoming paupers, and if we are to prevent the scandal that has attended our present system of pensions, it is absolutely necessary that crippled soldiers get back into industrial life at the earliest possible moment, and we therefore advise that they be not discharged from the army until a year after they have again begun to earn their living. We consider that all crippled soldiers should be in the hands of a department or committee appointed by the government, and that every crippled soldier must show this department that he has found employment or otherwise the department must find employment for him, not in training schools, workshops, camps or colonies, but in factories or as salesmen. This department should work through already constituted bodies of employers such as the National Association of Manufacturers, or the International Corporation, and the said bodies would place through their local organizations as many crippled soldiers as were turned over to them by the said department. We can confidently assert that from watching experiments over here that no other method will solve this big problem.

We have laid the above proposal in some detail before Mr. George Pope, President of the National Association of Manufacturers, Hartford, Conn., and before Major Joel E. Goldthwaite, 1 Charles River Place, Boston, U. S. A., who is an advisor of the government in this matter, but although the Association took kindly to the idea they say they must wait the lead of the government. We are, therefore, asking you to look into this matter and if you can honestly give us your co-operation, to do so, in order that this problem which is bound to be a very pressing one may not find us unprepared.

Faithfully yours,

ROBINSON SMITH,
Chairman of the Sub-Committee on Crippled Soldiers.

The activities of the American Committee of Engineers in London have been duly noted, from time to time, on the pages of the BULLETIN, and as also already announced, the Society stands ready to co-operate in those activities when the opportunity arises. Thus, this specific request for co-operation was deemed of such importance that the Secretary at once transmitted copies of Mr. Smith's letter to members of Council, and to others, at the same time calling for recommendations in the premises.

The Secretary's action in the matter has resulted in a gratifying response from many correspondents, together with numerous recommendations. Space will not allow the printing of these communications in full, but the excerpts which follow form

a symposium which will sufficiently well express the views of the writers.

J. V. N. Dorr.—The problem is so large, and so many good men will undoubtedly be working upon it, that I feel confident the best method of handling it will become evident and be standardized. I should think that constructive action would be taken by some of the various sociological societies in this country, such as The American Academy of Political & Social Science, which would look at the subject in the broadest sense, and that the distribution of men to different industries could properly be handled by an organization composed of accredited representatives from all kinds of trade and technical organizations. It would seem that a clearing house could be established, which would collect data and be in touch, through a general committee, with these organizations, so that men could be distributed where they could fit into the best advantage. The suggestion, that they should be kept under the control of the military for a period of one year after being self-supporting, appears extremely valuable, as giving an opportunity for the Government to rectify original errors in distribution.

I should think that a committee of the Mining and Metallurgical Society could properly be appointed to present to the Society a brief as to the organizations already in existence for furthering this work, so that the Society could affiliate with them and lend its weight towards the efficient handling of the problem.

Stanley A. Easton.—Crippled soldiers should go back into industrial life and be put on an earning, if not self supporting, basis just as quickly as possible, as much for their own good as for economic reasons. Having had some experience in handling men crippled in mining and affiliated work, I know that their mental and physical healing is hastened by following some interesting and gainful occupation, rather than by loafing about thinking of their misfortunes, and listening to the condolences of their friends, even if they are receiving the best of care and comfort. I have found that there is some useful work for almost any cripple, although I have never had a totally blind, unfortunate victim to place. I have observed repeatedly that the victim of some accident who may have been very badly mutilated and who was desperately blue and discouraged, recovered his spirits and faced the future cheerfully just as soon as he got something to do that he could successfully handle. I believe the suggestion that men crippled in the National Service be not discharged, but kept in the Army for at least a year is an excellent one, but they should be encouraged to take up their work where they left off on entering the Service. If with some strong and public spirited organization it is quite probable that such former employer can find something for them to do that will suit their impaired physical condition, particularly if some governmental or other influence is brought to bear on such employer, and the military pay continued while the man is breaking into his new work. Young men of whom our military forces are nearly entirely composed develop rapidly along new lines when their old work is made impossible because of physical disability. I have noticed individuals who have never done any clerical or mental work, gain very rapidly in this direction when an injury prevented them from continuing the manual labor which heretofore was their sole calling. Briefly, my suggestion is: Help these men get back into civilian life to take up their old work or similar work where they left it off, through the co-operation of their former employers and the government, or some organization formed for such mission.

***W. O. Owens.**—It is my personal opinion that the time to reach the crippled soldier is before he has been injured. With a knowledge of what has been done by other men, when crippled, after proper education and training of their remaining faculties, when he himself is injured, these pictures will unconsciously return to his mind. The "biological engineer," when caring for him while still in the hospital, has an opportunity to infuse into him the hope that he, too, may be able to do that which he knows others have done, and that proper training will enable him, with the faculties still remaining, to be of such service to other people as shall entitle him, as a unit of human society, to a return for the service rendered—not only mere self-support, but with a balance to his credit which he may expend on some future rainy day, or, if he shall so choose, for the amusement of himself and those who are dependent upon him. A crippled soldier, it is my earnest belief, should be systematically and carefully trained along the line of his own natural bent, when it is possible, and be made to know that he can be self-supporting.

The most useful time to reach the crippled soldier is when he is hurt, by then inviting his attention to the fact that others have been trained, and that he can be, also, if he will only have hope in his heart and an earnest desire to do so, and the courage to overcome the obstacles that are in his way.

I do not think that the crippled soldier ought to be allowed to feel that he is dependent upon the charity of other people. He ought to be educated to the point where he can feel, and justly, that he is capable of rendering service for which the public will be willing to pay, not as a charity, but for service actually rendered.

There are some few men in this world who are beginning to recognize that there are many varieties of engineers. There is the engineer who does surveying work, and the locating of railroads, etc.; there is the engineer who plans and erects buildings; there is the engineer who plans automobile parts and the repair thereof, so as to keep them in serviceable condition; and there, too, Mr. Huntoon, is the "biological engineer," whose duty it is to study the human machine and make it as efficient as the anatomy, physiology, and psychology are losing their old indefiniteness and becoming matters of accurate measurement, so that in many cases these functions are actually charted out in the measure of time and distance. And so it should be with the crippled soldier and the biological engineer should not, in my humble judgment, take his hand from off this man until he is an educated product and the mechanical engineer takes him in hand as a tool for the production of material for the use of other men.

I am very much obliged to you indeed for your letter and I will be more than happy to take my part in aiding and assisting your work in every way that may be possible.

R. A. F. Penrose, Jr.—I have read carefully what Mr. Smith says, and feel that there is a great deal to be done along the lines he suggests. I think, however, that it would be more appropriate for the Mining and Metallurgical Society to assist in this matter along lines which may be suggested or supported by our Government, rather than to attempt to initiate new plans of their own, which might not fit in with the broader plans of the country at large.

*Col. W. O. Owens, War Department, Washington, D. C.

***V. S. Petterson.**—Quite some time ago, Mr. Eugene R. Pike, Comptroller of the City of Chicago, realized the fact that all municipalities would eventually have to find some logical method to re-educate young men who had left the city's industries for service in the present war, and that without question, in a good many cases, many of these young men would return to the city in a crippled physical and discouraged mental condition—due to hardships and injuries suffered by them in their country's service. Mr. Pike assigned this subject to the writer as one of the subjects for investigation by the Efficiency Division of his office. Mr. Pike has ably assisted our work many times with valuable suggestions that tended to greatly clarify the question.

One of the most important facts discovered in our investigation was that, comparatively speaking, the military crippled question is really a very small part of the question covering the re-education of cripples in general; including under this head, those that are crippled daily in American industries.

We found that this question will without doubt, eventually establish the principles of re-education of cripples, which has in the past been sadly neglected, as one of the fundamental and basic duties of our municipal educational systems. We further found that the problem will eventually crystallize into a community activity operating upon general principles and a national plan of organization. This is principally due to the fact that the industrial problems of each community in the country differ in their detail and requirements of re-education, but of course they also are in general plan, quite similar.

We must also consider the fact that it would be extremely poor policy to go ahead and establish an expensive national institution for the re-education of the military cripples only, without also providing for the civilian cripple at the same time, as it should be obvious that the work of re-educating military cripples would shortly have to be abandoned, due to lack of—roughly speaking—"raw material." Therefore, we believe that anything that is done in the line of re-educating military cripples should be designed so as also to include and take care of industrial cripples. There seems to be no question regarding the fact that the man injured in industry is entitled to some consideration, as well as the military cripple, for he is, we feel convinced, also doing valuable work for his country.

In conclusion we wish to advise that we concur absolutely with the advice of the American Committee of Engineers in London, that the Government should not discharge a crippled soldier from the army until one year after he has again begun to earn his own living.

†Fred Rawitzer.—There is an endless stream of work being started all over the U. S., national as well as state and private, for the caretaking and re-education of crippled soldiers. I hold that there are practically enough institutions of all kinds in existence now to accomplish such a purpose for civilian as well as military cripples, and I would like to see all this waste and duplication of effort, well meant though it is, stopped. Back in December, I submitted to the Department of Labor, a plan which I feel certain I could carry to a successful solution. At a time like this, when every unit is needed to increase the working power of the country, we have overlooked a large army of crippled men and women, who through the aid of medical, surgical or mechanical assistance could be made efficient.

*V. S. Petterson, Department of Finance, Chicago, Ill.

†Fred Rawitzer, 36 South State St., Chicago, Ill.

In my opinion, there are no special vocational schools needed, because practically every human activity is already represented by factories, which could give these cripples the required industrial education.

What is needed is co-ordination.

I have submitted definite plans, which include the establishment of a central registration bureau for the U. S., and which should register all crippled citizens, civilian as well as military men and women. Hospitals and remedial institutions of every kind should be selected for the particular kind of work they wish to do and the registrants should be divided among them. The intimate relationship that exists between the physician and the patient will enable the former to judge of the kind of work that the patient will be fit for. On complete physical restoration, the physician should certify the patient back to the Registration Bureau with his recommendation for the class of work, and the Bureau should turn him or her over to the U. S. Employment Bureau. This latter, by keeping in touch with the existing Employers and Manufacturers Associations, would have at its command, a complete and most diversified list of occupations to send the re-made cripples to. I hold that this Registration Bureau should also be notified of the work and place of the applicant and should follow him into his after-life.

In addition to the above, suggestive letters have been received from *L. M. Gilbreth, A. R. Ledoux and F. F. Sharpless.

As indicated by Mr. Rawitzer, there are apparently a number of organizations which are making a serious study of the crippled soldier problem. Furthermore, it would seem that the Government has not been idle and that perhaps the logical procedure is for it to take the first active steps. It may, however, be supposed that the co-operation of any, and all, organizations cannot but be helpful.

The Secretary solicits helpful criticism relative to this matter of caring for the crippled American soldier. Although it is obviously a subject of vital importance to the Nation, thus far but little general consideration has apparently been given to it.

MEETINGS OF SECTIONS.

NEW YORK SECTION.

Meeting of February 14, 1918.

A meeting of the New York Section of the Mining and Metallurgical Society of America was held at the Columbia University Club on February 14. The speaker of the evening was Simon Lake, who spoke upon "The Development of the Submarine."

*L. M. Gilbreth, 77 Brown St., Providence, R. I.

Mr. Lake showed a number of lantern slides from drawings and photographs illustrating the development of the submarine from the earliest attempts to construct an under-sea's boat to the designs of the present day. Some discussion followed the talk, which was not illuminating from the members' point of view.

Mr. Lake, being a builder and advocate of the merits and possibilities of the submarine, views and talks entirely from this angle and was not disposed to point out the weaknesses of the vessel and its vulnerable points.

Our members are deeply interested in the subject but rather from the point of discovering the weak points of this type of craft and means for destroying or rendering them useless as naval vessels

The following members and guests attended: S. H. Ball, A. J. Bressau, S. H. Brockumer, Alfred Chambers, J. A. Church, Jr., E. H. Clark, R. W. Deacon, C. V. Drew, J. V. N. Dorr, A. E. Drucker, John Erskine, R. F. Goodwin, W. Griffith, H. W. Hardinge, H. E. Hawxhurst, L. D. Huntoon, J. P. Hutchins, W. R. Ingalls, W. Judson, H. H. Knox, J. Langton, T. H. Leggett, T. W. Mather, L. W. Mayer, Lieut. Messick, J. W. Mercer, H. G. Moulton, C. W. Nichols, F. W. O'Neil, R. Peele, Jobe Ridgway, A. H. Rogers, G. A. Schroter, F. F. Sharpless, G. C. Stone, E. B. Sturgis, G. D. VanArsdale, A. P. Watt, A. L. Walker, H. H. Webb, R. B. Williams and G. J. Young.

MEMBERS ELECTED IN FEBRUARY.

- Adkinson, Henry M... Walker Bank Bldg., Salt Lake City, Utah
Consulting Mining Engineer.
- Chase, March Frederick..... 30 Lenox Pl., St. Louis, Mo.
Expert for National Council of Defense.
- Emery, Augustus B..... Messina, Transvaal, South Africa
Manager, Messina Devel. Co., Ltd.
- Moore, Carl F. P. O. Box 385, Boston, Mass.
Con. Engineer, U. S. S. R. & Mg. Co.
- Provot, Francis Adolphe.. Columbia University Club, New York
Consulting Mining Engineer.
- Tuttle, Arthur L..... Copperhill, Tennessee
Gen. Mgr., Tennessee Copper Co.

CHANGES OF ADDRESS.

Berry, Edwin S. Council Nat. Defense Bldg., Washington, D. C.
 Gepp, H. W. . El. Zinc Co. of A., Risdon Road, Hobart, Tasmania
 Hoover, Herbert C. . . . 1701 Mass. Ave., N. W., Washington, D. C.
 Knox, H. H. 17 Madison Ave., New York
 Liddell, Donald M. 1341 North Avenue, Elizabeth, N. J.
 Spilsbury, E. G. 29 Broadway, New York
 Van Wagenen, Hugh R. . . . 1225 Foster Bldg., Denver, Colorado
 Wells, Bulkeley. 318 Fourteenth Street, Denver, Colorado
 Wethey, A. H. 1104 Windsor Ave., Salt Lake City, Utah
 Yeatman, Pope. Council Nat. Defense Bldg., Washington, D. C.
 Young, George J. 10th Ave. and 36th St., New York

PERSONALS.

Albert W. Burch is reported to be on his way to Cuba and other islands of the Caribbean Sea, to investigate for the Bureau of Mines the supply of manganese ore which is, or may be made, available on these islands.

G. H. Clevenger, on January 1, resigned the professorship of metallurgy at Stanford University, and has undertaken certain experiments now being conducted by the U. S. Bureau of Mines, in co-operation with others.

Benedict Crowell, who is, as previously announced, Assistant Secretary of War, according to an article, which appeared in an issue of *The Sun* late in January, is not a believer in red tape. In consequence of his "short-cut" methods, there is now less confusion, and more real work accomplished in a given length of time, in the War Department.

E. L. Dufourcq leaves on or about the 1st of March for Mexico, on professional work. He is to be absent from his office until late in the Spring.

R. C. Gemmel presided at a complimentary dinner given to Emmet D. Boyle, Governor of Nevada, and himself a mining man of experience. This function took place at Salt Lake City, late in January, and was arranged by the Utah chapter of the American Mining Congress.

W. R. Ingalls addressed Company A, 27th Engineers, at an assembly on January 31, and emphasized to the men the fact that the mining industry was standing back of them. This also was the occasion for the presentation of the gifts made possible by the "Comfort Fund."

Woolsey McA. Johnson announces, under date of February 13, that he has severed his connection with the War Trade Board.

Edward K. Judd, for some years editor of the *BULLETIN*, is now managing editor of the *Bulletins* and "Transactions" of the American Institute of Mining Engineers.

Donald M. Liddell, who, as noted in the honor roll, has been assigned to the War Credits Board as chief engineer, is also a captain in the Signal Officers' Reserve Corps.

A. C. Ludlum has been requested by the *Engineering and Mining Journal* to serve on an advisory committee of three for the distribution of its "Comfort Fund." The other members of this committee are Messrs. B. B. Thayer and Clinton H. Crane.

Seeley W. Mudd, who is, as already known, a major in the Officers' Reserve Corps, has been made assistant director to Mr. D. C. Jackling, in charge of the two powder plants now being erected by the Government.

O. B. Perry has been promoted to the lieutenant colonelcy of the 27th Engineers, N. A.

Joseph Hyde Pratt, geologist for the State of North Carolina, and at present also lieutenant colonel, O. R. C., has recently issued a report on the "Operations of the North Carolina Geological and Economic Survey" for the years 1915 and 1916.

M. L. Requa, recently appointed chief of the oil division of the Fuel Administration, will have charge of the distribution of all available fuel oil, producers of which have been placed under Government license.

George D. VanArsdale tells in a recent issue of the *Engineering and Mining Journal* of experiments in leaching copper ores on a commercial scale. In a later number of this journal, George J. Young, also a member of the Society, makes comment on Mr. VanArsdale's paper.

William Young Westervelt, Chairman, has recently issued on behalf of the War Minerals Committee a register of consumers of pyrites. Thus, the miner of pyrites may now know in what direction to turn to dispose of his product.

O. R. Whitaker, who, as reported in the January *BULLETIN*, had undertaken an investigation of the smelting situation in Colorado, has completed his report, and this has recently been issued as a part of a larger report by the legislative committee, appointed for the same general purpose.

Pope Yeatman has been mentioned as a possibility for chairman of the "Joint Information Board on Minerals and their Derivatives," which has been recently organized.

Mining and Metallurgical Society *of* America

Vol. XI

February 28, 1918 Supplement to No. 2

DRAFT OF A BILL TO CREATE AN ADMINISTRATION FOR THE MINERAL INDUSTRY.

To the Members of the
Mining and Metallurgical Society.

Dear Sirs:

The communication from the War Minerals Committee which immediately follows, together with draft of bill to which it refers, was submitted to the Council for its consideration on March 8.

As this matter of minerals-control legislation so vitally affects the entire mining and metallurgical industry, and as the War Minerals Committee has virtually requested an expression of opinion, the Council meeting voted unanimously to publish this communication, and the bill itself, in the form of a special bulletin, and, in this way, to refer the whole matter to the membership.

Therefore, you are urged, as requested by the W. M. C., to give careful consideration to this draft of bill authorizing a Mineral Administration and to send to this office such recommendations and suggestions as you may deem advisable, relative to the draft as a whole, or to any part thereof.

LOUIS D. HUNTOON,
Secretary.

"February 22, 1918.

"Mr. Louis D. Huntoon, Secy.,

"Mining and Metallurgical Society of America,

"115 Broadway, New York City, N. Y.

"The War Minerals Committee has drawn a bill empowering the President to create an administration for the mineral industry along the lines of the food administration. This bill covers practically all ores and minerals except aluminum, gold, silver, steel and iron, copper, lead, zinc, coal and petroleum. This committee

represents through the Mining and Metallurgical Society and American Institute of Mining Engineers, the mining engineering and geological professions both in Government and private work. It realizes keenly the difficulties that confront the mining industry on account of the War and the great need that exists for some authoritative agency in Washington to help guide our great industry into channels of the greatest effectiveness in helping to win the War. The Committee also keenly realizes the need for the advice and support of the leaders of the mining profession in formulating such an important piece of legislation to present to the Congress. It feels most strongly that there is an opportunity for important patriotic service on the part of the members of the M. and M. Society in assisting in getting all their best ideas incorporated in the bill and in getting the proper Governmental machinery created for the purpose of organizing the industry in the best way possible to bring every resource to bear effectively for winning the War.

"The Committee will therefore appreciate your assistance if you will make a careful study of the bill and send your suggestions to us. It will also be of great help if you will bring the bill to the favorable attention of the entire mining and allied industries. It is firmly convinced that a vast amount of help to the industry can be given if the right sort of co-operation for which this bill provides is maintained between the Government and the industry.

"In studying this bill, do not forget that the purpose is to help the industry organize itself on a War basis and while there must be restrictive provisions in the bill, the main purpose is to provide the information and help and guidance that can only come through an authoritative central agency.

"WILLIAM YOUNG WESTERVELT, *Chairman.*

"A. G. WHITE, *Secretary.*

"W. O. HOTCHKISS.

"DAVID WHITE."

A bill to provide further for the national security and defense by encouraging the production, conserving the supply, and controlling the distribution of those ores, metals, and minerals which have formerly been largely imported, or of which there is or may be an inadequate supply.

BE IT ENACTED BY THE SENATE AND HOUSE OF REPRESENTATIVES OF THE UNITED STATES OF AMERICA IN CONGRESS ASSEMBLED, That by reason of

the existence of a state of war, it is essential to the national security and defense, for the successful prosecution of the war, for the support and maintenance of the Army and Navy, to assure an adequate supply, equitable distribution, and to facilitate the production and movement of necessities, which in this act shall include all ores, minerals, intermediate metallurgical products, metals, alloys, and chemical compounds of antimony, arsenic, bismuth, bromine, chromium, corundum, emery, graphite, iridium, magnesite, manganese, mercury, mica, molybdenum, osmium, platinum, potash, pyrites, sulphur, tin, tungsten, uranium, vanadium, and of other rare or unusual elements the supply of which may, in the judgment of the President, be inadequate for war and industrial needs; to prevent, locally or generally, scarcity, monopolization, hoarding, injurious speculation, manipulation, and private controls, affecting such supply, distribution, and movement; and to establish and maintain governmental control of such necessities during the war and thereafter only until, in the judgment of the President, the agencies and activities herein provided for can be reasonably terminated. For such purposes the instrumentalities, means, methods, powers, authorities, duties, obligations, and prohibitions hereinafter set forth are created, established, conferred, and prescribed. The President is authorized to make such regulations and to issue such orders as are essential effectively to carry out the provisions of this Act.

Sec. 2. That in carrying out the purposes of this Act the President is authorized to enter into any voluntary arrangements or agreements to create and use any agency or agencies, to delegate any of his authority under this Act to such agency or agencies, to accept the services of any person without compensation, to cooperate with any agency or person, to utilize any department or agency of the Government, and to coordinate their activities so as to avoid any preventable loss or duplication of effort or funds. Any person may be employed under the provisions of this Act without reference to the civil-service laws and regulations.

Sec. 3. That no person acting either as a voluntary or paid agent or employee of the United States in any capacity, including an advisory capacity, shall solicit, induce, or attempt to induce, any person or officer authorized to execute or to direct the execution of contracts on behalf of the United States to make any contract or give any order for the furnishing to the United States of work, labor, or services, or of materials, supplies, or other property of any kind or character, if such agent or employee has any pecuniary interest in such contract or order, or

if he or any firm of which he is a member, or corporation, joint-stock company, or association of which he is an officer or stockholder, or in the pecuniary profits of which he is directly or indirectly interested, shall be a party thereto. Nor shall any agent or employee make, or permit any committee or other body of which he is a member to make, or participate in making, any recommendation concerning such contract or order to any council, board, or commission of the United States, or to any member or subordinate thereof, without making to the best of his knowledge and belief a full and complete disclosure in writing to such council, board, commission, or subordinate of any and every pecuniary interest which he may have in such contract or order and of his interest in any firm, corporation, company, or association being a party thereto. Nor shall he participate in the awarding of such contract or giving such order. Any wilful violation of any of the provisions of this section shall be punishable by a fine of not more than \$10,000, or by imprisonment of not more than five years, or both:—PROVIDED, That the provisions of this section shall not change, alter, or repeal section forty-one of chapter three hundred and twenty-one, Thirty-fifth Statutes at large.

Sec. 4. That it is hereby made unlawful for any person except as otherwise provided by this Act, wilfully to destroy any necessities for the purpose of enhancing the price or restricting the supply thereof; knowingly to commit waste or wilfully to permit preventable deterioration of any necessities in or in connection with their production, manufacture, or distribution; to hoard, as defined in section six of this Act, any necessities; to monopolize or attempt to monopolize, either locally or generally, any necessities; to engage in any discriminatory and unfair or any deceptive or wasteful practice or device, or to make any unjust or unreasonable rate or charge, in handling or dealing in or with any necessities; to conspire, combine, agree, or arrange with any other person—(a) to limit the facilities for transporting, producing, manufacturing, supplying, storing, or dealing in any necessities; (b) to restrict the supply of any necessities; (c) to restrict distribution of any necessities; (d) to prevent, limit, or lessen the manufacture or production of any necessities in order to enhance the price thereof, or (e) to exact excessive prices for any necessities; or to aid or abet the doing of any Act made unlawful by this section.

Sec. 5. That, from time to time, whenever the President shall find it essential to license the manufacture, storage, mining or distribution of any necessities, in order to carry into effect

any of the purposes of this Act, and shall publicly so announce, no person shall, after the date fixed in the announcement, engage in or carry on any such business specified in the announcement of mining, manufacture, storage, or distribution of any necessities as set forth in such announcement, unless he shall secure and hold a license issued pursuant to this section. The President is authorized to issue such licenses and to prescribe regulations for the issuance of licenses and requirements for systems of accounts and auditing of accounts to be kept by licensees, submission of reports by them with or without oath or affirmation, and the entry and inspection by the President's duly authorized agents of the places of business, correspondence, papers, books, and records, of licensees. Whenever the President shall find that any royalty, charge, commission, profit, or practice of any licensee is unjust, or unreasonable, or discriminatory and unfair, or wasteful, or causing waste, and shall order such licensee, within a reasonable time fixed in the order to discontinue the same, unless such order, which shall recite the facts found, is revoked or suspended, such licensee shall, within the time prescribed in the order, discontinue such unjust, unreasonable, wasteful, discriminatory and unfair royalty, charge, commission, profit, or practice. The President may, in lieu of any such unjust, unreasonable, wasteful, discriminatory and unfair royalty, charge, commission, profit, or practice, find what is a just, reasonable, nondiscriminatory and fair royalty, charge, commission, profit, or practice, and in any proceeding brought in any court such order of the President shall be prima facie evidence. Any person who, without a license issued pursuant to this section, or whose license shall have been revoked, knowingly engages in or carries on any business for which a license is required under this section, or wilfully fails or refuses to discontinue any unjust, unreasonable, wasteful, discriminatory and unfair royalty charge, commission, profit, or practice, in accordance with the requirement of an order issued under this section, or any regulation prescribed under this section, shall, upon conviction thereof, be punished by a fine not exceeding \$5,000, or by imprisonment for not more than two years, or both.

Sec. 6. That any person who wilfully hoards any necessities shall upon conviction thereof be fined not exceeding \$5,000 or be imprisoned for not more than two years, or both. Necessaries shall be deemed to be hoarded within the meaning of this Act when either (a) held, contracted for, or arranged for by any producer, manufacturer, wholesaler, retailer, dealer, or other person in a quantity in excess of the reasonable requirements of his

business for use or sale by him for a reasonable time, or reasonably required to furnish necessities produced in surplus quantities seasonally throughout the period of scant or no production; or (b) withheld, whether by possession or under any contract or arrangement, from the market by any person for the purpose of unreasonably increasing or diminishing the price.

Sec. 7. That whenever any necessities shall be hoarded as defined in section six they shall be liable to be proceeded against in any district court of the United States within the district where the same are found and seized by a process of libel for condemnation, and if such necessities shall be adjudged to be hoarded they shall be disposed of by sale in such manner as to provide the most equitable distribution thereof as the court may direct, and the proceeds thereof, less the legal costs and charges, shall be paid to the party entitled thereto. The proceedings of such libel cases shall conform as near as may be to the proceedings in admiralty, except that either party may demand trial by jury of any issue of fact joined in any such case, and all such proceedings shall be at the suit of and in the name of the United States. It shall be the duty of the United States attorney for the proper district to institute and prosecute any such action upon presentation to him of satisfactory evidence to sustain the same.

Sec. 8. That any person who wilfully destroys any necessities for the purpose of enhancing the price or restricting the supply thereof shall, upon conviction thereof, be fined not exceeding \$5,000 or imprisoned for not more than two years, or both.

Sec. 9. That any person who conspires, combines, agrees, or arranges with any other person, or who aids or abets any other person (a) to limit the facilities for transporting, producing, manufacturing, supplying, storing, or dealing in any necessities; (b) to restrict the supply of any necessities; (c) to restrict the distribution of any necessities; (d) to prevent, limit, or lessen the manufacture or production of any necessities in order to enhance the price thereof shall, upon conviction thereof, be fined not exceeding \$10,000 or be imprisoned for not more than two years, or both.

Sec. 10. That the President is authorized from time to time, whenever in his judgment it may be required for the successful prosecution of the war, to requisition necessities, and to requisition, or otherwise provide, storage facilities for such necessities; and he shall ascertain and pay a just compensation

therefor. Compensation provided for under this section shall be paid from the appropriation made by section eighteen of this Act or from such other funds as the President may set aside for such purpose. If the compensation so determined be not satisfactory to the person entitled to receive the same, such person shall be paid seventy-five per centum of the amount so determined by the President, and shall be entitled to sue the United States to recover such further sum as, added to said seventy-five per centum, will make such amount as will be just compensation for such necessities or storage space, and jurisdiction is hereby conferred on the United States District Courts to hear and determine all such controversies; PROVIDED, That nothing in this section, or in the section that follows, shall be construed to require any natural person to furnish to the Government any necessities held by him and reasonably required for his consumption or use.

Sec. 11. That the President is authorized from time to time to use the funds provided under section eighteen to enter into contracts for necessities for periods of not exceeding two years, to purchase, to store, to provide storage facilities for, and to sell necessities at reasonable prices to be fixed by the President:— PROVIDED, That if any minimum price shall have been theretofore fixed pursuant to the provisions of section fourteen of this Act, then the price paid for any such articles so purchased shall not be less than such minimum price. Any moneys received by the United States from or in connection with the disposal by the United States of necessities under this section may, in the discretion of the President, be used as a revolving fund for further carrying out the purposes of this section. Any balance of such moneys not used as part of such revolving fund shall be covered into the Treasury as miscellaneous receipts.

Sec. 12. That whenever the President shall find it essential to the successful prosecution of the war to secure an adequate supply of necessities, he is authorized to requisition and take over, for use or operation by the Government, any undeveloped or idle mineral land or deposit, mine, smeltery, or plant, and to develop, operate or cause the same to be developed or operated in such manner and through such agency as he may direct. Whenever the President shall determine that the further use or operation by the Government of any such mineral land, deposit, mine, smeltery, or plant, or part thereof, is not essential for the successful prosecution of the war the same shall be restored to the person entitled to the possession thereof. The United States shall make just compensation, to be determined by the President,

for the taking over, use, occupation, and operation by the Government of any such mineral land or deposit, mine, smeltery, or plant, or part thereof. If the compensation so determined be unsatisfactory to the person entitled to receive the same, such person shall be paid seventy-five per centum of the amount so determined by the President, and shall be entitled to sue the United States to recover such further sum as added to said seventy-five per centum will make up such amount as will be just compensation in the manner provided for by section twenty-four, paragraph twenty, and section one hundred and forty-five of the Judicial Code. Compensation provided for in this section shall be paid from the appropriation made by section eighteen of this Act or from such other funds as the President may set aside for this purpose. The President is authorized to prescribe such regulations as he may deem essential for carrying out the purposes of this section, including the operation of any such mineral land or deposit, mine, smeltery, or plant, or part thereof, the purchase, sale or other disposition of articles used, manufactured, produced, prepared, or mined therein, and the employment, control and compensation of employees. Any moneys received by the United States from or in connection with the use or operation of any such mineral land or deposit, mine, smeltery, or plant, or part thereof, may, in the discretion of the President, be used as a revolving fund for the purpose of the continued use or operation of any such mineral land or deposit, mine, smeltery, plant, or part thereof, and the accounts of each such mineral land or deposit, mine, smeltery, plant, or part thereof, shall be kept separate and distinct. Any balance of such moneys not used as part of such revolving fund shall be paid into the Treasury as miscellaneous receipts.

Sec. 13. That whenever the President finds it essential in order to prevent undue enhancement, depression, or fluctuation of prices of, or in order to prevent injurious speculation in, or in order to prevent unjust market manipulation or unfair and misleading market quotations of the prices of necessities, hereafter in this section called evil practices, he is authorized to prescribe such regulations governing, or may either wholly or partly prohibit, such operations, practices, and transactions as he may find essential in order to prevent, correct, or remove such evil practices. Such regulations may require all persons coming within their provisions to keep such records and statements of account, and may require such persons to make such returns, verified under oath or otherwise, as will fully and correctly disclose all transactions, including the making, execution, settlement, and

fulfillment thereof. He may appoint agents to conduct the investigations necessary to enforce the provisions of this section and all rules and regulations made by him in pursuance thereof, and may fix and pay the compensation of such agents. Any person who wilfully violates any regulation made pursuant to this section, or who knowingly engages in any operation, practice, or transaction prohibited pursuant to this section, or who wilfully aids or abets any such violation or any such prohibited operation, practice, or transaction, shall, upon conviction thereof, be punished by a fine not exceeding \$10,000 or by imprisonment for not more than four years, or both.

Sec. 14. That whenever the President shall find that an emergency exists requiring stimulation of the production of necessities and that it is essential that the producers of necessities shall have the benefits of the guaranty provided for in this section, he is authorized, from time to time, seasonably and as far in advance as practicable, to determine and fix and give public notice of what, under specified conditions, are reasonable guaranteed prices, in order to assure such producers a reasonable profit. The President shall, from time to time, establish and promulgate such regulations as he shall deem wise in connection with such guaranteed prices, and, in particular, governing conditions of delivery and payment and differences in price for the several specified necessities in the principal primary markets of the United States. Thereupon, the Government of the United States hereby guarantees every producer of these specified necessities that, upon compliance by him with the regulations prescribed, he shall receive for any necessities produced in reliance upon this guarantee within the period, not exceeding two years, prescribed in the notice, a price not less than the guaranteed price therefor as fixed pursuant to this section. In such regulations the President shall prescribe the terms and conditions upon which any producer shall be entitled to the benefits of such guaranty. When the President finds that the importation into the United States of any of these necessities produced outside of the United States materially enhances or is likely materially to enhance the liabilities of the United States under guaranties of prices therefor made pursuant to this section, and ascertains what rate of duty, added to the then existing rate of duty, if any, on each of the necessities and to the value of each of the necessities at the time of importation, would be sufficient to bring the price thereof at which imported up to the price fixed therefor pursuant to the foregoing provisions of this section, he shall proclaim such facts,

and thereafter there shall be levied, collected, and paid upon each of these necessities, when imported, in addition to the then existing rate of duty, the rate of duty so ascertained; but in no case shall any such rate of duty be fixed at an amount which will effect a reduction of the rate of duty upon any of these necessities under any then existing tariff law of the United States. For the purpose of making any guaranteed price effective under this section, or whenever he deems it essential, in order to protect the Government of the United States against material enhancement of its liabilities arising out of any guaranty under this section, the President is authorized also, in his discretion, to purchase any of these necessities for which a guaranteed price shall be fixed under this section, and to hold, transport, or store, or to sell, dispose of, and deliver the same to any citizen of the United States or to any Government engaged in war with any country with which the Government of the United States is or may be at war, or to use the same as supplies for any department or agency of the Government of the United States. Whenever and wherever it is in his judgment necessary for the effective prosecution of the war, the President is authorized and empowered to fix the prices of necessities, wherever and whenever sold, either by producer or dealer, to establish rules for the regulation of and to regulate the method of production, sale, shipment, distribution, apportionment, or storage thereof among dealers and consumers, domestic or foreign. Any moneys received by the United States from or in connection with the sale or disposal of necessities under this section may, in the discretion of the President, be used as a revolving fund for further carrying out the purposes of this section. Any balance of such moneys not used as part of such revolving fund shall be covered into the Treasury as miscellaneous receipts.

Sec. 15. That whenever the President shall find that limitation, regulation, or prohibition of the use of any of these necessities is essential in order to assure an adequate and continuous supply of necessities, or that the national security and defense will be subserved thereby, he is authorized, from time to time, to prescribe and give public notice of the extent of the limitation, regulation, prohibition, or reduction so necessitated. Whenever such notice shall have been given and shall remain unrevoked all persons shall, after a reasonable time prescribed in such notice, conform to the order providing such limitation, regulation, prohibition, or reduction. Any person who wilfully violates the provisions of this section, or who shall violate any rule or regulation made under this section, shall be punished by

a fine not exceeding \$5,000, or by imprisonment for not more than two years, or both.

Sec. 16. That every person who wilfully assaults, resists, impedes, or interferes with any officer, employee, or agent of the United States in the execution of any duty authorized to be performed by or pursuant to this Act shall upon conviction thereof be fined not exceeding \$1,000, or be imprisoned for not more than one year, or both.

Sec. 17. The sum of \$1,000,000 is hereby appropriated out of any moneys in the Treasury not otherwise appropriated, to be available until June thirtieth, nineteen hundred and nineteen, for the payment of all expenses of carrying out the provisions of this act, including personal services, traveling and subsistence expenses, the payment for office space; the purchase of equipment, supplies, postage, printing, publications, and such other articles, both in the District of Columbia and elsewhere, as the President may deem essential.

Sec. 18. That for the purposes of this Act the sum of \$50,000,000 is hereby appropriated, out of any moneys in the Treasury not otherwise appropriated, to be available as a revolving fund during the time this Act is in effect:—PROVIDED, That no part of this appropriation shall be expended for the purposes described in the preceding section:—PROVIDED further, That itemized statements covering all purchases and disbursements under this and the preceding section shall be filed with the Secretary of the Senate and the Clerk of the House of Representatives on or before the twenty-fifth day of each month after the taking effect of this Act, covering the business of the preceding month, and said statements shall be subject to public inspection.

Sec. 19. That employment under the provisions of this Act shall not exempt any person from military service under the provisions of the selective draft law approved May eighteenth, nineteen hundred and seventeen.

Sec. 20. The President shall cause a detailed report to be made to the Congress on the first day of January each year of all proceedings had under this Act during the year preceding. Such report shall, in addition to other matters, contain an account of all persons appointed or employed, the salary or compensation paid or allowed each, the aggregate amount of the different kinds of property purchased or requisitioned, the use and disposition made of such property, and a statement of all receipts, payments, and expenditures, together with a statement showing the general character, and estimated value of all prop-

erty then on hand, and the aggregate amount and character of all claims against the United States growing out of this Act.

Sec. 21. That if any clause, sentence, paragraph, or part of this Act shall for any reason be adjudged by any court of competent jurisdiction to be invalid, such judgment shall not affect, impair, or invalidate the remainder thereof, but shall be confined in its operation to the clause, sentence, paragraph, or part thereof, directly involved in the controversy in which such judgment shall have been rendered.

Sec. 22. That words used in this Act shall be construed to import the plural or the singular, as the case demands. The word "person," wherever used in this Act, shall include individuals, partnerships, associations, and corporations. When construing and enforcing the provisions of this Act, the act, omission, or failure of any official, agent, or other person acting for or employed by any partnership, association, or corporation within the scope of his employment or office shall, in every case, also be deemed the act, omission, or failure of such partnership, association, or corporation as well as that of the person.

Sec. 23. That the provisions of this Act shall cease to be in effect after the existing state of war between the United States and Germany shall have terminated, and the fact and date of such termination shall be ascertained and proclaimed by the President as soon as in his judgment the agencies and activities herein provided for can be reasonably terminated; but the termination of this Act shall not affect any act done, or any right or obligation accruing or accrued, or any suit or proceeding had or commenced in any civil case before the said termination pursuant to this Act; but all rights and liabilities under this Act arising before its termination shall continue and may be enforced in the same manner as if the Act had not terminated. Any offense committed and all penalties, forfeitures, or liabilities incurred prior to such termination may be prosecuted or punished in the same manner and with the same effect as if this Act had not been terminated.

Mining and Metallurgical Society *of* America

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Bul. 118

ANNOUNCEMENTS.

Meeting of the Society.—As has already been announced to the members by formal notice, a special meeting of the Society will take place at the Columbia University Club on Thursday, April 18, at 8 p. m. This special meeting has been called by the President to consider certain amendments to the by-laws, initially presented at the annual meeting of the Society held on January 8 and also to discuss the draft of a minerals-control bill submitted by the War Minerals Committee. The meeting will, as usual, be preceded by an informal dinner.

New York Section.—A meeting of this Section was not held during the month of March because of a possible conflict with a meeting of the Society which had been called for the presentation of the gold medal to Pope Yeatman. Similarly, there will be no meeting in April due to the fact that a special meeting of the Society is to be held in that month.

Council.—On March 8, the Council met at the Columbia University Club to give attention to a large accumulation of business. Among important matters considered at this time were the A. H. Rogers' resolution with reference to the surtax on professional incomes, the care of the crippled American soldier and the proposed bill for a minerals administration. This meeting is reported in detail on another page.

Annual Medal.—A full report of the ceremonies in connection with the presentation of the gold medal for 1918 to Mr. Yeatman, which took place on March 21, will appear in the April issue. It may be reported here, however, that, as this BULLETIN goes to press, something over 100 applications for seats at the Yeatman dinner had been received, which should certainly go far in making the evening a success.

Minerals-Control Bill.—A reading of the proceedings of the Council, appearing in this issue, will evidence the extreme im-

portance with which the Councillors present regarded this question of a minerals administration. And it was for this reason that Council determined to place the entire matter before the membership in the form of a supplementary bulletin.

Although no time limit has been fixed upon, if the Society is to make recommendations regarding this legislation, or is to express an opinion of the measure as a whole, such action must be taken with some despatch. Those members, therefore, who have not made suggestions, and yet desire to do so, are urged to communicate with the Secretary promptly.

Government War Service.—The "Comfort Fund" for the 27th Engineers, shows a continual growth, but there is still room for improvement in this respect. The March 16th issue of the *Engineering and Mining Journal* reports total contributions of \$9,343.00.

At the instance of a contributor, it is now possible to make payments on the installment plan, and reminder notices will be sent to those who adopt this method. Checks should be drawn to the order of W. R. Ingalls, Treasurer, 10th Ave. and 36th St., New York City.

In speaking of the 27th Engineers, mention should be made that recruits are needed. Under the present selective service law, men in the draft may be voluntarily inducted into this special service of mining.

John Fritz Medal.—It has been reported that April 17 is the date on which presentation of the John Fritz Medal for this year will take place. Mr. Charles Warren Hunt is the chairman of the committee on arrangements for this function, and doubtless detailed announcement will presently be made.

Changes of Address.—As will be noted by reference to the proceedings of the Council printed elsewhere in this BULLETIN, a motion was unanimously passed to publish the annual list of members, with addresses, separately, and not as heretofore in combination with the constitution and by-laws. This list is now in preparation and will go to the printers in short order, and thus any alterations in addresses, or with reference to changes of occupation, should be noted and sent in to the Secretary immediately.

Bound Volumes.—Generally speaking, only a sufficient number of each year's bulletins are bound to meet actual orders

placed, none being carried over in stock. Thus, unless orders are placed for the 1917 bound volumes promptly, they will not be obtainable.

The Secretary desires to report that, in spite of the fact that bound volumes for any given year are not kept in stock and are not available from any other source, a few for 1916, which were bound without orders, have been picked up at the bindery.

WAR TAX LAW.

Excess Profits Tax.—The referendum relative to the extra war revenue tax on professional incomes was mailed to the members on March 13. According to the by-laws, thirty days are allowed for the return of ballots and it is hoped that the members will be governed thereby.

Proxy Tax.—Under instructions from the Council, the question as to whether the Society was of such a character as would necessitate the affixing of tax stamps on proxies was submitted to the Commissioner of Internal Revenue. The Commissioner held that the Society was not "educational" in the meaning of the law, and as it is incorporated, proxies are taxable. It may be added, that our counsel, Messrs. Douglas, Armitage & McCann, concur in this finding.

COMMUNICATIONS.

Crippled American Soldiers.—The proceedings of the Council, as reported elsewhere in this issue, make note of action taken by it, on March 8, to the end that the Society is prepared to cooperate in the matter of the crippled American soldier.

Now, under dates of March 11 and 18, additional communications have been received, of which the salient portions are given below. That from Mr. Palmer, who is acting Commissioner of the Department of Labor and Industry, State of Pennsylvania, makes it evident that his state has every intention of being foremost in beginning missionary work in behalf of the permanently injured men who may shortly be returning from the front. The second letter is from Major Wood, of the Medical Reserve Corps.

Lew R. Palmer.—In accordance with your request I am enclosing copy of a questionnaire sent to employers of Pennsylvania to awaken

interest in the problem that will soon be confronting us. As you will observe, this questionnaire does not go into great detail from the standpoint of analyzing possible tasks at machine operation or other processes for men suffering from classified disabilities. This questionnaire has been sent out merely to inaugurate this movement in Pennsylvania and prepare the way for more intensive activity during the coming months.

Pennsylvania was the first State, according to my knowledge, to inaugurate this work. The action was taken here in co-operation with the offices of the Surgeon General at Washington where, according to my present understanding, the reconstruction, rehabilitation and re-education of crippled soldiers will be centralized as a National project or duty.

The Pennsylvania Department of Labor and Industry has, of course, no facilities for the reconstruction, rehabilitation or re-education of war cripples. Consequently the work devolving upon this Department will be to aid in solving the problem of placing cripples in suitable employment in Pennsylvania industries after those cripples have been treated under the direction of the Surgeon General. This questionnaire, general as it is, has already given this Department information where 30,000 cripples of various kinds may be advantageously placed in employment throughout this State. First of all the cripple must be placed in a task which can be properly performed in spite of his disability and preferably along a line of his training prior to entering the war. Secondly, if the cripple originally came from Pennsylvania, he may doubtless have some preference as to the locality in Pennsylvania at or near which he desires employment. The first condition involves a great amount of study and co-operation with the National authorities,—surgeons and vocational training, experts,—for the proper and efficient placement of our disabled soldiers, sailors and marines.

I would recommend that you take up this matter with the office of the Surgeon General from the National standpoint and further I would recommend that you urge all members of your society to give thought and co-operation to the solution of this problem. Your society can doubtless aid materially in Pennsylvania by its members, in this State, co-operating in the placement of activities that will devolve upon this Department and as I have outlined above.

Casey A. Wood.—I am in charge, for the Surgeon General, of the literary sub-section of Reconstruction and Re-education of the Disabled Soldier, and I am much interested in the work that you are doing in that direction. I would be much obliged to you for two copies of BULLETIN No. 117, mentioned in your letter.

I have placed your name on the mailing list for the Bulletins issued by the Surgeon General, myself as editor, on the rehabilitation of the soldier and sailor.

Glossary of Terms.—It may not be generally known to the members that the Bureau of Mines has undertaken a glossary of terms in use by the mining and metallurgical industries, and that definitions for something over 25,000 terms have already been collected. Mr. Albert H. Fay, Mining Engineer of the Bureau, states in a letter under date of March 6, that he would be pleased to receive any special mining or metallurgical terms

that any of the members may care to submit. It is the Secretary's understanding that unusual and colloquial terms are desired, and that even Spanish words which are of very common usage by English speaking engineers are acceptable.

A. C. E. in London.—The "Third Progress Report" of the American Committee of Engineers in London, with date of February 1, 1918, came to hand in the middle of March. This report makes interesting reading, and gives every evidence that the A. C. E. in London is devoting much time and thought to solving the innumerable problems which are arising every day and to aiding the allied governments in every possible way.

On the cover of this report is printed a list of the officers and members of this Committee, and it is here also announced that the M. and M. Society, and the War Committee of Technical Societies are the New York correspondents of the A. C. E. in London.

In this connection, in the body of the report, an announcement is made as to the relationship of the American Committee of Engineers in London with American societies. Especial reference is made to a letter, "suggesting that intimate co-operation be established between the M. and M. S. A., also the War Committee of Technical Societies on the one side, and the A. C. E. L. on the other." This letter is one which was forwarded, in the fall of 1917, by certain members of the Society who are also associate members of the A. C. E. in London.

OTHER SOCIETIES.

AMERICAN INSTITUTE OF MINING ENGINEERS.

The 116th meeting of the Institute took place during the week beginning with February 18, 1918, and in spite of trying times, the attendance at the different functions was well up to the average.

Technical sessions were held on the first three days, and the annual business meeting immediately preceded the morning session of February 19. At this time, the election of the following ticket was reported: President, Sidney J. Jennings; first vice-president, C. W. Goodale; vice-presidents, H. S. Drinker, R. M. Raymond; directors, F. G. Cottrell, J. V. N. Dorr, Hennen Jennings, George C. Stone, Samuel A. Taylor and Arthur Thacher.

Arrangements for entertaining members and their guests were more subdued in tone than is usually the case. Nevertheless, this phase of the convention included visits to the new subways and to the Aviation School at Princeton, N. J., and the "Hoover" dinner on the evening of February 20. For the ladies also, an attractive program was arranged.

ENGINEERING COUNCIL.

War Committee of Technical Societies.—C. R. Corning, one of the representatives of the Society on this Committee, has transmitted to this office a brief statement as to this Committee's proceedings at a meeting held on March 8.

It now seems that the War Department has officially accepted the services of the W. C. T. S., and that furthermore an officer of the Ordnance Department has been assigned to the Committee, and that, by invitation, he will hereafter be present at all the meetings of the Committee.

In the matter of "new business," Mr. Corning states that "the question of smokeless combustion of bituminous coal in marine boilers" and "the problem of rendering soldiers uniforms water-proof without destroying the porosity of the material" were submitted for consideration and discussion.

American Engineering Service.—By referring to the February BULLETIN, a report of the activities of the Engineering Council and its committees will be found. This report resulted from its first annual meeting, held on February 21, and the Secretary is now in receipt of the report of one of its committees, the American Engineering Service, submitted at this same meeting.

This statement was prepared by George J. Foran, Chairman of the A. E. S., and as the purposes for which this body was created are familiar to the members, and as the work which it has undertaken is similar to that undertaken by the Society itself, it is here printed in full, in order that the members may know what has been accomplished up to this time. That even more has not been done, is due, as noted in the February BULLETIN, to the lack of necessary financial aid at the outset.

The work of the American Engineering Service is so well understood by the Council that only a brief resumé of its work up-to-date would seem to be necessary at this time.

This Committee was created on July 13, 1917, to collect information regarding the members of the Founder Societies and to compile a tabulation thereof. The Committee was also authorized, at its election, to invite other Societies to co-operate in its activities. The Committee

immediately began work under a broad interpretation of the motion by which it was created, and in accordance with the wishes of the Council, as understood, with the idea of extending its activities to include the members of all engineering societies throughout the country and of such other professional engineers as might be considered qualified for membership in these societies. The intention was to make instantly available for the service of our Country the maximum possible engineering talent in all fields of engineering, and at the same time to strengthen and broaden the engineering societies and their work. It was also considered that tabulation should be such as to have in mind the equally important work of the efficient re-distribution of the engineering abilities of the Country in the different industries at the termination of the war. It was ascertained that there were approximately 450 so-called engineering societies and clubs in the United States, a list of which was carefully made, although of this number probably less than 100 can be properly classified as engineering societies, a large number of which—both state and local organizations—hold fixed meetings for the discussion of engineering subjects, and issue transactions.

We immediately addressed the various societies throughout the country, requesting lists of their memberships and by-laws, and suggesting the possibility of their later co-operation with us in this work. Lists of members and by-laws were received from such societies as issue them, and these are now on file in the office of the Secretary of the Engineering Council; with one exception, all of the active societies to which we suggested later co-operation replied with the greatest enthusiasm and expressed their willingness to do everything possible at the earliest opportunity. Some of these societies had already issued questionnaires to their own memberships and had compiled returns, which in some cases had been forwarded to various departments in Washington. They also forwarded copies of lists to us and have frequently asked us since that time how soon they could begin active work. We realized that the detail work of classification must require considerable time and money which were not available at that time to us. Our first active work was, therefore, the compilation of lists of specialists in each of the societies to be immediately available for important work required by the Government.

The A.S.M.E. had already organized its Committee on Engineering Resources and had generously contributed to its work, which was being carried on most efficiently. The questionnaire, prepared by it after careful study, and the system of cross-indexing having proved most satisfactory, it was decided that the same forms and detailed classification, elaborated to cover other branches of engineering, could be satisfactorily adhered to for the general work of the Committee and for the collection of data from other societies. As funds were not available for the Committee's work, the various societies were appealed to to carry on this work at their own expense along the lines adopted by the A.S.M.E. and four societies responded immediately—

- The American Institute of Electrical Engineers.
- The New York Electrical Society.
- The Illuminating Engineering Society.
- The American Gas Institute.

Each of these societies issued a questionnaire, carrying its own name, having the same classification as used by the A.S.M.E., with ad-

ditions to cover special lines of work. The A.I.E.E. and N.Y.E.S. did their own work of cross-indexing, and used the A.S.M.E. size and type of card; the I.E.S. and A.G.I. had the work of cross-indexing done for them at their expense by the A.S.M.E. staff.

Funds were allotted this Committee at the January meeting of the Council and within a week of that time we were requested by the American Society of Refrigerating Engineers to prepare questionnaires and cross-index cards for it immediately, so that it could carry on a similar work.

In the meantime, the American Engineering Service has become well known to the different departments of the Government. The Committee has, of necessity, availed itself largely of the completed work and facilities of the A.S.M.E. and, where possible, requests have been transferred to and handled by the A.S.M.E.

During the last ten weeks of 1917, this Committee and the Founder Societies supplied the names of 2,000 engineers, and during the month of January, 1918, over 1,000 engineers, to the various Governmental departments, and the calls for engineers are rapidly increasing.

We have been able to supply immediately all requests from the Government for engineering specialists even for several hundred men at a time.

The War Department, in order to avoid confusion and duplication both to the Government and to the engineers, has formed a War Service Exchange through which, in a short time, all requests for engineers from every bureau of the War Department, will come to us. Our Committee is in absolute understanding and accord with the Government upon this question, and the details were thoroughly and satisfactorily thrashed out recently at a special meeting, in the Engineering Societies Building, with Major Sanctuary, Chief of the War Service Exchange.

It is the intention to arrange immediately to take over the A.S.M.E. organization for handling this service, and to enlarge or modify the same to perform the work of this Committee for the other Founder and the non-member societies in the interest of both economy and efficiency, this work being transferred to the office of the Secretary of the Council. It is contemplated that the files of the Founder Societies will be brought together at this point, and the cost of cross-indexing the members of any society will be charged to that society, the cost for non-members being borne by this Committee. There are now many thousand applications from non-members to be handled and several large lists will be turned over to this Committee by other organizations for uniform indexing. We also have a full copy of the returned questionnaires and cards of the A.I.M.E. supplied by the Bureau of Mines. The Committee believes that it will shortly show still greater results and will be able rapidly to carry out efficiently the plans for the complete indexing of the engineering talent of the Country.

The Council also referred to this Committee the question of an employment bureau. This work was considered of less immediate importance than personnel for war work and has not been actively entered upon. This special feature has not, however, been neglected, as it is well looked after by some of the Founder Societies at the present time, so well, in fact, that it must be the subject of careful study to decide

whether this work can better be handled by a central committee than by the special committee of each society for its own membership as at present.

It is believed that no special representative of this Committee at Washington is necessary but it is recommended that in case the Council should locate representatives in Washington, they should also promote the work of this Committee.

Yours very truly,

A. S. McALLISTER.

A. D. FLINN.

GEO. C. STONE.

EDWARD B. STURGIS, *Secretary*.

GEORGE J. FORAN, *Chairman*.

COUNCIL.

Meeting of March 8, 1918.

A meeting of the Council at the call of the President was held at the Columbia University Club, New York City, on March 8, 1918, at 5:15 p.m. The President, Mr. W. R. Ingalls, presided, and other Councillors present were as follows: Messrs. Channing, Huntoon, Kirby, Sharpless and Yeatman.

As the minutes of the previous meeting, held on January 22, had been already submitted to the Councillors for their approval, and as the Secretary had not received any suggested corrections, they received the approval of the meeting.

Standardization Committee.—The report of this Committee relative to the "Magnification Scales for Micrographs," of which an initial report had been submitted by the American Society for Testing Materials, was read by the Secretary. Some discussion followed, in which Mr. Channing, who is a member of this Committee, explained more fully the Committee's action, and in which Mr. Ingalls suggested that the report should be submitted to the membership at large for its endorsement. Thereupon, it was moved, duly seconded and carried:

That the report of the Committee on Standardization be accepted and that, at a proper time, it should be presented to the membership for its consideration; and that the Secretary notify Mr. Edgar Marburg, Secretary of the A. S. T. M., of the action taken by the Committee and that a copy of the report should be sent to him.

The secretary announced that the report of the Standardization Committee had already appeared in the BULLETIN.

Eastern Siberia Project.—The Secretary announced receipt of the report of the Special Committee appointed to consider a

"Project for increasing grain and food production in Eastern Siberia" regarding which a memorandum had come from the American Committee of Engineers in London. He further stated that the report had been printed in the BULLETIN of February 28, and that copies had been sent to Alvey A. Adee, Assistant Secretary of State, and to C. W. Purington, Honorary Chairman of the A. C. E. in London.

Counsel to the Society.—The President announced that, through the efforts of the Secretary, the services of Messrs. Douglas, Armitage and McCann had been obtained to give legal advice to the Society in routine matters, and that the Secretary's action in this matter had been endorsed by the Executive Committee. On motion properly seconded and carried, this arrangement was approved by the Council.

Referendum.—The proposed referendum, based on the resolution submitted by A. H. Rogers at the annual meeting with reference to the supertax on professional incomes, was then read by the Secretary. The President, in a few words, explained what action had been taken in the matter up to that time. A motion to submit the referendum to the membership was thereupon passed.

Tax on Proxies.—The Secretary submitted a letter from the Internal Revenue Bureau which stated that proxies, utilized for voting at an election of officers, are taxable in the case of an incorporated association, such as the M. and M. Society. Action in this matter was referred back to the Secretary.

New York Office.—On the recommendation of the Secretary that the Society should make a contract of lease for its present offices for a term of two years, at a rental of \$900.00 per year, it was regularly moved, seconded and carried, that the Secretary's recommendation be accepted, and that he be authorized to carry this action into effect. The Secretary explained that this rental was an increase of \$150.00 above the current amount, but that, if an one-year lease only were made at this time, the probabilities were that a further increase might be expected in 1919.

Bulletin of December 31.—The Secretary announced that several requests for additional copies of BULLETIN No. 115 had been received. Furthermore, he stated that, as this BULLETIN contained the remarks of Major Rousseau and of Major Perry, a special request had come from Major Perry's office for fifty copies. This had made a reprinting of this issue necessary.

Crippled American Soldiers.—It was reported by the Secretary that a communication had been received from Robinson Smith, Chairman of a sub-committee of the American Committee of Engineers in London, requesting the co-operation of this Society in the care of the crippled American soldier. It was further reported that copies of this communication had been mailed to the members of Council, to other members and to a few outsiders, and that excerpts of the replies received had been published in BULLETIN No. 117.

The Secretary brought to the attention of the meeting the fact that Major Frank B. Gilbreth had been commissioned by the Government to secure employment for crippled American soldiers, and recommended that the Council adopt the resolution which follows:

That the Mining and Metallurgical Society is ready to co-operate with Major Gilbreth, or any other official who may be appointed by the Government for this purpose, to aid in finding useful employment for crippled American soldiers.

As a second motion referring to this matter, the Secretary recommended the following:

That copy of the resolution adopted by the Council be mailed to Major Gilbreth, and to others who are interested in this suggestion and have been in correspondence with the Secretary.

Both recommendations of the Secretary were thereupon unanimously adopted by the meeting.

New Members.—The Secretary announced that ballot No. 74 had been polled on February 13, and that the Council had, by unanimous vote, elected Henry M. Adkinson, March Frederick Chace, Augustus B. Emery, Carl F. Moore, Francis Adolphe Provot and Arthur L. Tuttle to membership in the Society; it was further announced that these new members had been notified of their election.

Membership.—The Secretary reported the following schedule showing the condition of membership on March 8.

	Jan. 1	Mar. 8.
Membership January 1, 1918.....	301	301
Members elected since January 1, 1918.....		9
		<hr/>
		310
Members resigned	7	
Members deceased	1	8
	<hr/>	<hr/>
		302

MINING AND METALLURGICAL SOCIETY OF AMERICA

Applications before Council	3	—
Applications before Members.....	6	6
Applications before Executive Committee...	1	1
Applications in office.....	2	3
		<hr/>
		312

Sections.—The Secretary suggested that something should be done to stimulate activity in the Philadelphia and San Francisco Sections. He called attention to the fact that the New York Section was the only one to hold regular meetings, and that, in the case of the Philadelphia Section, there is but one officer.

Gold Medal Presentation.—Announcement was made that a committee of arrangements had been appointed, and that the arrangements for the Yeatman dinner were well under way.

Amendments to By-Laws.—Instructions were requested by the Secretary as to what further action should be taken in the matter of certain proposed amendments to the by-laws which had been prepared by the Executive Committee and had received the approval of the Council. As such amendments must receive consideration at a meeting of the whole Society, it was decided that such meeting should be held some time in April, but coincident with the New York Section meeting in that same month.

List of Members.—As a corrected list of members should be published as early as possible, the Secretary suggested that such list be issued separately and not, as heretofore, as a part of the year book containing the constitution and by-laws of the Society. This suggestion received the approval of the meeting and it was moved, seconded and carried: "That the list of members be published under separate cover, and that this be done immediately."

Bound Volumes.—The Secretary's recommendation with reference to a contract for binding the BULLETIN was adopted, the award to be given to the lowest bidder.

Minerals Administration.—A telegram recently received from the War Minerals Committee was submitted, and the Secretary informed the meeting that copies of this telegram had been mailed to each Councillor. This communication re-

fers to a proposed bill for the control of minerals on the same general plan as that which now exists under the Food Administration. The War Minerals Committee requests the advice and support of the Society.

An interesting and lengthy discussion thereupon ensued; the President at the outset calling on Mr. Yeatman for his advice. Mr. Yeatman stated that the War Industries Board was in favor of a minerals-control bill, and he pointed out that, in order to conserve shipping, it is the desire of the Administration to eliminate entirely importations of such minerals as manganese, pyrite and chromite, and make the United States self-supporting, and it was his opinion that Government aid will therefore perhaps be necessary, and that some form of control will have to be adopted, with the possibility of some price-fixing system.

Mr. Ingalls then stated that, in his belief, the natural stimulation in the production of essential minerals, as now existing, is increasing the supply of these minerals very significantly; he suggested that, as greater stimulation was necessary, this might be done by a very large corporation.

Other phases of the subject in hand, such as the position of the small adventurer and the question of minimum prices, were then discussed. Then, Mr. Yeatman remarked that, although he was in agreement with Mr. Ingalls, that the law of supply and demand should in ordinary times be allowed to take its course, these were not ordinary times, that we are not in position to await for things to become stabilized, and that, although the Administration thoroughly disapproves of price-fixing, it may become necessary, as a war measure. Messrs. Kirby and Sharpless also entered into this discussion.

Mr. Ingalls thereupon called the meeting's attention to the salient portion of the telegram from the War Minerals Committee, and it then became clear that, in the opinion of the meeting, the Council had no right to make suggestions or recommendations in the premises, but that this should be left to the membership at large. It was then moved, properly seconded and passed:

That a separate bulletin containing copy of bill as drafted by the War Minerals Committee, together with copy of telegram, should be sent to the membership with all despatch, with a request for such suggestions as it may see fit to make.

The meeting thereupon adjourned at 6:30 p. m.

LOUIS D. HUNTOON,
Secretary.

AN APPRECIATION.

WILLIAM HAGUE.

The sketch which follows, together with the portrait which appears opposite, were sent to the Secretary by the kindness of Mr. A. D. Foote, an uncle of Lieutenant Hague. Mr. Foote states that the portrait, a miniature in the original, is a wonderfully good likeness.

William Hague, First Lieutenant, Co. F. 116th Regiment of Engineers, American Expeditionary Force, died in France on January first, 1918.

The only son of James D. Hague; he followed his distinguished father's profession of mining with an ardent love for the work—with an insatiable thirst for knowledge and a phenomenal power of discovering and assimilating it wherever it could be found. His note books are a marvel of accumulated, well ordered details of his professional work.

His patriotism and love of country was not of the emotional kind, but rather a matter of every day duty, equal or superior to his every day work. When he found Germany breaking all the laws of Nations and humanity and using organized, fiendish brutality and greed to conquer and debase the world, he went to Plattsburg to learn the trade of war.

He worked hard at this trade, that he might be the more useful, and after his discharge from Plattsburg obtained a commission as First Lieutenant in the Engineers Reserve Corps. When war was declared he was ready, and shortly was called into the service; first at the Presidio; then American Lake; Mineola; France. Trained to order and system, he strove for months to bring method and direction into the chaos of the new training camps and teach uncouth boys how to be men and soldiers; detailed drudgery of the most wearing kind to his orderly mind. He never failed for a moment in this work, which undoubtedly weakened his health so that when the pneumonia attack came, he lived but a few days.

Young, with a wife and son, a goodly fortune, a worthy position in his profession, everything to make life worth living, and living that life worthily and happily; he carefully planned and deliberately worked to give it all as the simple duty of citizenship.

On the Service flag hanging over the office of the North Star mine, are some seventy-five blue stars on the white ground—one for each of the men who have followed William Hague into the service. There is one white star on the red ground since January first, and the flags of the mines, and the town of Grass Valley, are at half-mast for the Gallant Gentleman who led the way.

CHANGES OF ADDRESS.

Mudd, S. W.2400 16th St., N. W., Washington, D. C.
 Munro, C. H.120 Broadway, New York
 Parker, E. W.242 Woodward Bldg., Washington, D. C.
 Sizer, F. L.1006 Hobart Bldg., San Francisco, Cal.



WILLIAM HAGUE

PERSONALS.

H. Foster Bain is reported to have accepted the position of assistant to Director Manning of the Bureau of Mines. He is expected to return shortly from Shanghai.

J. A. Burgess is a contributor to *Economic Geology* for October-November, 1917. The title of his article is "Silver Haloid Salts, Wonder, Nevada," and it describes the halogen salts of silver.

R. C. Canby reviews the decisions of U. S. courts in the matter of the Minerals Separation Co. in a paper, presented at the meeting of the Canadian Mining Institute, entitled "Comparison of Points in Flotation, the Moore Filter and Cyaniding Cases."

J. Parke Channing lectured to the Boston local sections of the A. I. M. E., and the A. S. M. E., on March 15 and 16, respectively. His subject was "Man Power."

G. M. Colvocoresses' paper on the "Manufacture of Nickel-Copper-Alloy Steel" has been the cause of much discussion. Mr. Colvocoresses personally presented his paper at the meeting of the Canadian Mining Institute.

Eli T. Connor presented a paper, with title "Anthracite Situation in the United States," before the recent meeting of the Canadian Mining Institute.

Benedict Crowell, during the absence of Secretary Baker in France, is Acting-Secretary of War and, from all accounts, is proving himself to be thoroughly competent in handling the large affairs of this Department.

A. E. Drucker writes a short article entitled "Cyaniding Concentrates vs. Smelting" for the *Engineering and Mining Journal* for March 9.

Stanly A. Easton and Rush J. White were present at the convention of the Northwest Mining Association, held at Spokane in February.

H. W. Gepp, who, as already reported, has returned to Australia, is general manager of the Electrolytic Zinc Co., Tasmania.

L. C. Graton discusses the secondary enrichment of ore bodies in its relation to the water level in a paper presented at

the twentieth annual convention of the Canadian Mining Institute.

K. B. Heberlein and Otto Sussman have recently examined the holdings of the American Metal Co., Ltd., at Baxter, Kansas.

J. P. Hutchins, who, it will be remembered, gave the members at the annual meeting such an illuminating description of Russian conditions, appears as the author of "Extracts from the Diary of a Bolshevik Smelterman" in the March 9 issue of the *Engineering and Mining Journal*. It does not matter whether this is partly invention, or not, those who are in sympathy with Russia should read the article.

J. Volney Lewis was a speaker at the 175th anniversary of the birth of Abbé René Just Haüy, the father of crystallography. This ceremony was held under the auspices of the New York Mineralogical Club and others, at the Museum of Natural History on February 28.

Charles W. Merrill, J. E. Spurr and Pope Yeatman are members of the Joint Information Board on Minerals and their Derivatives, with the latter, representing the War Industries Board, as Chairman. Messrs. Merrill and Spurr are representatives from the U. S. Food Administration and the U. S. Shipping Board, respectively.

D. M. Riordan arrived in this city on March 10, and, although expected to return West at any moment, no definite date has been fixed upon.

Robert H. Richards writes under date of March 12 from Low Moor, Virginia, to state that he expects to be absent until the first week in April.

William F. Robertson, representing Vancouver, is one member of a large organizing committee appointed to consider the formation of an iron and steel section of the Canadian Mining Institute.

Reno H. Sales, who is geologist of the Anaconda Copper Mining Co., has been in Arizona on professional work.

E. Gybbon Spilsbury is in Cuba and will probably not return until some time in April.

Bradley Stoughton gave a lecture on "The Manufacture of Structural Steel" in Baltimore on March 27. This was one of

the J. E. Aldred series of lectures delivered under the auspices of Johns Hopkins University.

B. C. Thane, who has been studying the Pacific Coast resources of iron ores, for many months, gave a lecture on this subject to the members of the Chamber of Mines, Vancouver.

C. M. Weld left for Cuba on February 10, and is expected to return on or about April 1.

MEMBERS OF THE SOCIETY WHO HAVE BEEN CALLED INTO THE SERVICE OF THE U. S. GOVERNMENT AND THE ALLIED ARMIES.

Lawrence Addicks.....Member, U. S. Naval Consulting Board
Percy E. Barbour.....Capt., Reserve List, N. G., N. Y.
Edwin S. Berry.....Capt., 27th Engineers, O. R. C.
Alfred H. Brooks.....Capt. of Engineers, O. R. C.
Reginald W. Brock.....Major of Canadian forces
Gelasio Gaetani.....Capt., 1st Reg. of Engineers, Italian Army
March Frederick Chase....Expert, National Council of Defence
Will L. Clark.....Federal Fuel Administrator, Arizona
Welton J. Crook.....Officers' Training Camp
Benedict Crowell..Major, Eng. O. R. C.; Asst. Secretary of War
W. B. Devereux, Jr.....Capt., Aviation Section, S. O. R. C.
J. S. Douglas...Maj. and Dir. Warehouses, American Red Cross
A. S. Dwight.....Major, 1st Res. Engineers, O. R. C.
Baird Halberstadt..Fed. Fuel Administrator, Schuylkill Co., Pa.
W. L. Honnold.....Am. Dir., Com. for Relief in Belgium
Herbert C. Hoover.....U. S. Food Administrator
John D. Irving.....Capt., 1st Res. Engineers, O. R. C.
D. C. Jackling.....Dir. U. S. Gov. Explosives Plants
Donald M. Liddell.....Chief Eng., War Credits Board
Charles W. McMeekin.....Major of Engineers, O. R. C.
C. H. Macnutt.....Lt. of Engineers in Canadian forces
C. W. Merrill....Div. of Chemicals, U. S. Food Administration
H. G. Moulton.....Engineer, War Industries Board
Seeley W. Mudd.....Maj. and Asst. Dir. U. S. Gov. Expl. Plants

O. B. Perry.....Lt. Col., 27th Engineers, N. A.
 Joseph Hyde Pratt.....Lt. Col., 105th Engineers, N. A.
 A. L. Queneau.....Late of the French Army
 M. L. Requa.....Chief of Oil Div., U. S. Fuel Administration
 Edgar Rickard.....U. S. Food Administration
 W. L. Saunders.....Chairman, U. S. Naval Consulting Board
 Millard K. Shaler.....Hon. Sec., Com. for Relief in Belgium
 S. C. Thomson.....War Export Board
 Arthur L. Walker....Con. Met. to Chief of Ordnance, U. S. A.
 William Young Westervelt..Chairman, War Minerals Committee
 Pope Yeatman.....Con. Engineer, War Industries Board

DIED IN THE SERVICE OF HIS COUNTRY

William Hague.....January 1, 1918

Mining and Metallurgical Society *of* America

Vol. XI. No. 4

April 30, 1918

Bul. 119

ANNOUNCEMENTS.

Meetings of the Society.—The special meeting of the Society held on April 18, was unusually well attended. Among the forty-five members and guests, were a number who had come on from Washington to assist in the discussion of the proposed minerals-control legislation. With regard to certain proposed amendments to the by-laws, for the consideration of which also this meeting had been called, consent of the meeting for their withdrawal was obtained.

In order that some definite action relative to the administration of minerals bill might be taken by those present, the President, by the authority vested in him and for reasons of weight, called a meeting of the New York Section after adjournment of the general meeting of the Society.

The proceedings of these two meetings will appear in the next issue of the BULLETIN.

New York Section.—A meeting of this Section was called by the President for April 18, immediately following adjournment of a special meeting of the Society on the same date. For the reasons indicated above, no previous announcement of any kind had been made of this meeting.

Council.—At the call of the President, a meeting of the Council took place just prior to the meeting of the Society of April 18. A detailed report of the Council's transactions on this date will be printed in the May issue. In brief, however, it may be stated that the minerals-control law, as drafted by the War Minerals Committee, was the most important subject under consideration.

Annual Medal.—This BULLETIN contains, on another page, a detailed account of the gold medal presentation to Pope Yeat-

man, held on March 21. The success of this function, as prophesied in last month's issue, was complete in every way. The members with their guests, who came to do honor to Mr. Yeatman, totalled one hundred twenty-two, and, encouraged by the President, some of Mr. Yeatman's close friends painted an interesting picture of his career.

A very comprehensive account of the Yeatman dinner and medal presentation, is published in the March 30 number of the *Engineering and Mining Journal*.

Minerals-Control Bill.—The publication of a special bulletin, devoted wholly to the subject of a minerals administration, resulted in a number of suggestive letters from members—some proposing slight changes in text only, but others making concrete recommendations as to the principles involved.

In order that time for full consideration by the membership of this important legislation might be given, the President, even before the issuance of the supplement to the February BULLETIN, called meetings of the Philadelphia and San Francisco Sections. At the same time, the Secretary urged the members of the more influential centres, Boston, Denver and Salt Lake City, to hold meetings of engineers, whether members or not, for the purpose of considering the proposed minerals administration and to report their conclusions to the headquarters of the Society. Also, as announced both by formal notice and in the March BULLETIN, a special general meeting of the Society was called, with due notice, for April 18, the minerals-control bill being one of the two subjects specified for consideration.

It may not generally be known that hearings on "Minerals and Metals for War Purposes" were held before the House Committee on Mines and Mining from March 25 to April 2, and that among those who appeared to give opinions and to make recommendations were: Walter Douglas, Herbert Hoover, W. R. Ingalls, P. N. Moore, George Otis Smith, Bradley Stoughton, William Young Westervelt and Pope Yeatman, all members of the Society. Also, some members expressed their views regarding this pending measure by letter addressed to J. F. Callbreath, Secretary of the American Mining Congress—these were J. L. Bruce, George E. Collins, R. C. Gemmell, William Griffith and Gerald Sherman.

Subsequently, a bill was introduced in the House of Representatives by the Committee, later referred back to the Commit-

tee, and finally, on April 15, the same bill with slight amendments, was "committed to the Committee of the whole House."

What is stated above, indicates the legislative progress of the minerals-control bill, since it was drafted by the War Minerals Committee, and gives in abstract, the connection of the Society with this legislation. But, in the May BULLETIN, the publication of which will be hastened by authority of the Council, the proceedings of the Society and of its Sections relative to the bill in question, together with the more important communications regarding thereto, will appear in their entirety.

In the meantime, attention of the members might be called to editorials and other matter in the *Engineering and Mining Journal*, and particularly to the issues of April 6 and 20, referring to the administration of minerals.

"Eyes of the Navy."—A letter, addressed to the Secretary, was received from Commander C. P. Eaton, U. S. Navy, retired, under date of April 1, too late for issuance in the March BULLETIN. This communication contained a renewed appeal for the loan of field glasses to the Navy Department for the period of the war, and as the specific request was made to call on the membership for assistance in this matter, mimeographed copies were hastily prepared and mailed under the same cover with the last BULLETIN. Additional copies being available, a second installment goes out with this issue.

Membership List.—The printed member roll of the Society for 1918, thoroughly revised to April 1, is being mailed to the members with the BULLETIN, in the same envelope. It is the belief of this office that the new form in which the list now appears, i.e., bound separately from the constitution and by-laws, will appeal to the membership.

WAR TAX LAW.

The letter from Internal Revenue Commissioner Roper which follows, was received, as shown by date, nearly two months ago, but no reference has heretofore been made to it, or its subject. Proper attention was, however, given to this request for assistance in the administration of the Excess Profits Tax Act, at the time of its receipt, and a special committee, with F. F. Sharpless as Chairman, was appointed to take the matter under advisement.

MINING AND METALLURGICAL SOCIETY OF AMERICA

TREASURY DEPARTMENT,
Washington.

March 9, 1918.

The Secretary,
Mining & Metallurgical Society of America,
New York, N. Y.

Dear Sir:

The proper administration of certain sections of the Excess Profits Tax Act requires knowledge of the average net income and the average invested capital of representative corporations, partnerships and individuals in each separate trade and business both for the prewar period (1911, 1912, 1913) and the taxable year 1917.

May we invite your co-operation in obtaining at the earliest practicable date, and not later than April 15, the following information:

1. A classification of the trades and businesses represented by your association. This classification should distinguish branches of the industry and specialized departments when such branches or departments are sufficiently distinct to constitute a real trade or business for the purposes of effective taxation and the equalization thereof.

2. The names and addresses of representative corporations, partnerships and individuals engaged in each separate line of trade or business distinguished in the above classification.

3. Evidence showing the prevailing percentage or ratio of net income to invested capital during the prewar period for representative corporations, partnerships or individuals in each separate line of trade or business.

- (a) Was the average rate of earnings during this period (1911, 1912, 1913) unquestionably below 7 per cent or unquestionably in excess of 9 per cent?

- (b) Please supply any pertinent statistics, data, or trade reviews relating to prevailing conditions during the prewar period in any or all of the several trades or industries which you represent.

Trusting that you may see your way clear to assist to the extent indicated, I am,

Respectfully,

DANIEL C. ROPER,
Commissioner.

This special committee very shortly came to the conclusion that, although the Society would be glad to extend any aid within its power, the information required was not such as was available to the Society, it representing only the activities of professional engineers and not corporations engaged in commercial enterprise.

OTHER SOCIETIES.

ENGINEERING COUNCIL.

It will be remembered that the February BULLETIN included a statement regarding the past and present activities of the Engineering Council. This was advance copy, and the Secretary is now in receipt of this same statement in pamphlet form, reprinted from the *Proceedings of the American Society of Civil Engineers*, of March, 1918.

In its completed form, however, this pamphlet includes also a short appendix devoted to the "Compensation of Professional Engineers and Engineering Assistants on Railroads." It seems that on February 28, of this year, the Engineering Council addressed a communication to the Railroad Wage Commission, calling its attention to the fact that, as professional railroad engineers are not unionized, demands for salary increases must come from the individual, but that such demands are uniformly refused.

Furthermore, the rather startling statement is made that, with few exceptions, no greater compensation, for this class of engineering, is paid today than in 1914, and this in spite of the general increased cost of living. The very large discrepancies between the compensation allowed other railroad employees and the professional engineer, greatly strengthens the argument.

American Engineering Service.—As has been noted on the pages of the BULLETIN, funds have been made available for some part of the work of the American Engineering Service, and this has already proved beneficial. On April 1, the A. E. S., was formally installed on the ninth floor of the Engineering Societies Building, and at the same time procured the services of Mr. Walter V. Brown as general assistant and statistician. The staff will be enlarged a little later, but Mr. Brown will always be in charge and prepared to give assistance in the filling of professional personnel requirements from whatever source they may come.

For the present, the A. E. S., is naturally thoroughly engrossed in meeting Government demands for engineers, and it may be stated that these demands are heavy and vary greatly in their specifications. Also, many calls are received for men in non-professional classes, which, although not strictly in the province of the A. E. S., are given such attention as time will allow.

Very recently, an officer of the Ordnance Department visited the offices of the A. E. S., in person, and in this case interviews

for him were arranged on the spot with engineers available for Government service. The requirements here were difficult to meet because only the highest type of engineer was wanted, but nevertheless, it is gratifying to report that many vacant positions were filled.

The *Columbia Alumni News* for March 29, reports that the Intercollegiate Intelligence Bureau has been transferred to the War Service Exchange. The latter is under the jurisdiction of the Adjutant General, and is a part of the Committee on Classification of Personnel of the War Department, and is in charge of Major E. N. Sanctuary, N. A.

It is the intention that all personnel requirements, and at least those of the War Department, shall pass through the War Service Exchange, and that under these conditions, it was felt that the I. I. B., might wisely be amalgamated with this "Exchange." Although not in any way official, the Intercollegiate Intelligence Bureau, since the beginning of the war, has been of undoubted help in supplying college men, graduate and undergraduate, for war service.

It is with very considerable regret that announcement must be made of the resignation of Alfred D. Flinn from the "Service." He has found it necessary to take this step because of his continually increasing duties as Secretary of the Engineering Council, etc. It is understood that a successor has been appointed but not officially announced.

Another change in the personnel of the American Engineering Service is the appointment of F. T. Rubidge vice George C. Stone, who is absent from the United States and is not expected to return for some months. Mr. Rubidge, though a member of the Mining and Metallurgical Society, will represent the A. I. M. E.

MEETING OF THE SOCIETY. PRESENTATION OF GOLD MEDAL.

March 21, 1918.

The dinner and gold medal presentation of the Mining and Metallurgical Society, in honor of Pope Yeatman, was held at the Columbia University Club, on March 21, 1918.

In addition to Mr. Yeatman, Karl Eilers, Louis Le Moyne, Eugene Meyer, Jr., and Arthur Sewell, were present as guests of the Society. Others, both members and guests attending, were as follows:

W. H. Aldridge	H. W. Hardinge	J. Parker
G. O. Argall	G. F. Hilton	O. B. Perry
H. B. Atkins	W. D. Hoerr	F. E. Pierce
R. M. Atwater, Jr.	W. L. Honnold	J. H. Polhemus
C. L. Baker	R. L. Humphrey	W. A. Prichard
G. P. Bartholomew	L. D. Huntoon	H. A. Prosser
P. G. Beckett	J. P. Hutchins	F. A. Provot
H. C. Behr	W. R. Ingalls	R. M. Raymond
W. E. Bennett	H. Jennings	M. L. Requa
E. S. Berry	S. J. Jennings	D. M. Riordan
G. T. Bridgman	J. E. Johnson, Jr.	F. Y. Robertson
D. W. Brunton	W. Judson	A. H. Rogers
R. C. Canby	E. B. Kirby	C. A. Rose
J. P. Channing	G. F. Kunz	F. T. Rubidge
J. A. Church, Jr.	J. Langton	E. Schuster
E. Clark	B. B. Lawrence	F. F. Sharpless
W. G. Clark	S. LeFevre	H. E. Skougor
J. Clendenin	T. H. Leggett	T. Sternfeld
E. T. Conner	C. K. Lipman	B. Stoughton
J. F. Cook	W. Loeb, Jr.	E. B. Sturgis
I. H. Cornell	E. Ludlow	R. Steele
R. T. Cornell	A. C. Ludlum	W. G. Swart
F. G. Cottrell	D. A. Lyon	P. H. Thomas
H. L. Day	J. K. MacGowan	S. C. Thomson
J. H. Devereux	E. M. McIlvain	E. C. Thurston
J. V. N. Dorr	O. C. Martin	G. D. VanArsdale
A. Douglas	L. W. Mayer	J. A. VanMater
O. T. Dozier	J. H. Means	A. L. Walker
A. E. Drucker	W. W. Mein	A. Walz
W. M. Drury	J. W. Mercer	A. P. Watt
H. W. DuBois	R. E. Mora	H. H. Webb
C. Earl	W. S. Morse	F. R. Weekes
M. Elsfasser	H. G. Moulton	W. Y. Westervelt
B. Foraker	S. W. Mudd	R. B. Williams
F. R. Foraker	H. S. Mudd	H. A. J. Wilkins
H. W. Fox	C. H. Munro	C. S. Witherell
C. W. Goodale	H. Neilson	R. B. Yerxa
L. M. Green	C. W. Nichols	G. J. Young
H. A. Guess	E. Pardo	

The President of the Society, Mr. Ingalls, presided, and with him at the head table were the guest of honor, Pope Yeatman, and E. S. Berry, D. W. Brunton, Hennen Jennings, Sidney J. Jennings, Thos. H. Leggett, Eugene Meyer, Jr., Seeley W. Mudd, M. L. Requa and H. H. Webb.

The President.—Fellow members and guests: The Committee on Arrangements desires me to express the hope that you have enjoyed the dinner. It desires me to assure you that the menu was prepared in strict conformity with the principles of our colleague Hoover. It did not ask Mr. Hoover to furnish a certificate for the reason that he has been asked for so many certificates it was feared that, unless that was stopped, he wouldn't

have time to attend to more important things. But as I have looked over the menu my eye has fallen upon something that I don't think Mr. Hoover ever recommended, namely the café noir with Hoover sugar. As President of this Society it has come to my attention that our Secretary, Mr. Huntoon, took it upon himself to create Hoover sugar and spent three dollars in buying it for this dinner. (Laughter.) Before the dinner, I interrogated him officially on this subject and he assured me that he considered that he had expended the value of thirty pounds of sugar and possibly had saved the consumption of one pound. In my opinion this is something like the results that were attained last year by some of our members who plowed up their front lawns to raise potatoes. Now, if the Secretary has anything to say for himself I shall give him an opportunity.

The Secretary.—Mr. President and gentlemen: The menu this evening was selected by Mr. Sturgis and, on the recommendation of your Secretary, approved by the Committee on Arrangements without making an investigation, such as your President has made, regarding "Hoover sugar." Your Secretary must admit he did not call the attention of the committee to the three dollar charge for sweetening the café noir. The dinner to-night has been prepared along most careful lines, always bearing in mind the conservation of such food as has been suggested by the Food Administration.

Now to answer Mr. Ingalls: I invited one of our members, who happened recently to be in my office just before luncheon, to go with me to a drug store to purchase Hoover sugar for this dinner. We received a large bottle for \$1.00 and upon taking the wrapper off found the bottle filled with cotton covering about one layer of microscopic pellets. The druggist claimed that there were 100 pellets in the bottle. For fear that he had miscounted, we purchased three bottles. My fellow member then asked if I appreciated the fact that I might buy 30 pounds of sugar for \$3.00, and that only one or two pounds would be required for the dinner. He considered this a good joke on me, but he had overlooked the fact that we have not been requested to conserve or to hoard money, but have, on the other hand been requested to keep money in circulation and to conserve food supplies, and especially sugar.

Mr. President, I have one or two telegrams which I should like to read. Fred Hellmann, who is a member of the committee, wires from Buenos Aires:

Please convey Pope Yeatman heartiest congratulations on very appropriate award to him your gold medal.

John Hays Hammond regretted very much that he couldn't be here. I will read his telegram:

As a mining engineer, the achievements of Pope Yeatman are known the world over. The high honor so deservedly conferred upon him by the Mining and Metallurgical Society this evening, attests the esteem in which he is held by his professional confrères. Such approbation is praise indeed. Pope Yeatman is an honor to his profession. My own appreciation of his professional ability is known by the fact that for many years in Africa, and subsequently in this country, he was one of my most trusted assistants. It is especially with reference to Pope Yeatman as a man that I wish to record my esteem. I had known him in my student days at Yale. Then as an older boy, I had the opportunity to size him up. It was because of my implicit confidence in his integrity, his sense of duty and his level headedness, when he was a youth, I gave him his first position in Africa. It was his opportunity and he made good. He has continued unfailingly to make good ever since in the many responsible positions for which he has been selected by keen judges of men. I am a great believer in the mother's boy. Pope Yeatman was a reverent and devoted son and a kind and loyal friend to those who enjoyed the privileges of his friendship. These are the chief qualifications for real and abiding success in character and Pope Yeatman possesses them in the highest degree. In the new career to which he is patriotically dedicating his splendid abilities, Pope Yeatman will again make good, and while reflecting credit on his profession, he will prove an honor to his country. (Applause.)

Robert H. Richards, who has received the gold medal of the Society, has regretted exceedingly that he is unable to be here to-night. I will read a few paragraphs from a couple of his letters:

Mr. Yeatman has done fine work in his profession and is pre-eminently worthy of receiving the medal of the Society. I should enjoy being at the dinner and adding my voice to praise his work and to encourage and commend him to do more of the same kind.

Here is a paragraph from the second letter received from him:

The good work that Mr. Yeatman has done and the high esteem in which he is held by the profession point to him as a fitting recipient of the medal.

Dr. Douglas, who as you know has recently been elected an honorary member of this Society, sends his regrets as follows:

I am sorry that ill-health, which forbids my leaving my home in the evening, will prevent my acceptance of the invitation of the Society.
JAMES DOUGLAS.

Herbert Hoover would, I know, enjoy very much being here if it were possible for him to get away; he writes as follows:

I heartily approve the action of the Society in presenting the gold medal to Mr. Yeatman. As to the possibility of being present in New York, it is practically out of the question. I find that my presence in

Washington is more and more necessary and I would not like to commit myself for any engagement knowing full well that some important matter connected with the Government might cause me at the last moment to remain here. (Applause.)

There is a telegram here from our dear old friend Jimmy Kemp:

Heartiest congratulations to Pope Yeatman on award of Society's medal.

He signs himself J. F. Kemp, but we all know him as Jimmy. (Applause.)

The President.—I have been at a few dinners at which Mr. Yeatman has been the host, dinners that he has given to Mr. Hellmann and Mr. Sorensen and others of his collaborators whom he is delighted to honor, but it hasn't been an easy thing to get Mr. Yeatman to come to our dinners. We have had to give him our gold medal to insure his coming this evening. (Laughter.) Now, we have with us tonight many guests, aside from our own members, and for the benefit of those guests I am going to tell them what this gold medal means. The Mining and Metallurgical Society is composed of professional men who by virtue of their experience and standing in the profession have acquired a certain position. Once a year the Council selects some subject, some phase of professional work, which it deems to be a fitting subject, a subject of sufficiently major character, to justify the award of the medal for distinguished service. This year the selection of the Council was "Distinguished Service in the Administration of Mines." The subject having thus been decided upon, the award of the medal takes place, not as the decision of any committee but as the result of a direct primary or an election among all the professional colleagues of the candidates, who decide by their vote that the one that they choose is pre-eminently qualified above all others to receive the recognition by his professional colleagues for his distinguished service. The Medal Committee, who nominated the candidates this year, presented for Pope Yeatman this record:

"Born in St. Louis, August 3rd, 1861; received the degree of Engineer of Mines from Washington University, St. Louis, 1883. From 1883 to 1895 engaged in mining in Mexico, Missouri, New Mexico and Colorado. From 1895 to 1904 engaged in mining in South Africa. During this time he was engaged in the opening and development of the Robinson Deep Mine of the Consolidated Gold Fields of South Africa, 1895 to 1899. Later, he was general manager of the Simmer and Jack Proprietary Gold Mining Co. and general manager and consulting engineer of the Randfontein Estates Gold Mining Co., and responsible for the organization, equipment and development of this whole group of mines.

From 1906 to 1916 he was consulting engineer to M. Guggenheim Sons and to the Guggenheim Exploration Co. He was engaged in the development and equipment of the Nevada Consolidated Copper Co., in the development and administration of the Steptoe Valley Smelting and Mining Co., of the Chile Exploration Co., and of the Braden Copper Co. of Chile. Of the Braden and Chuquicamata mines in Chile, he has been in charge from their earliest stages.

Why the Medal Committee ceased with 1916 I do not know, but that is the record. Committees in writing formal documents of record have necessarily to confine themselves to bald statements of fact. They cannot, or do not, put any coloring upon their sketch. Their work is like that of the painter who draws his outlines with pencil. It falls to me to paint the picture, but, appreciating my own imperfections as a painter, I have surrounded myself with colleagues to my right and to my left who are able to put in the finishing touches.

Some of us who are here to-night have known Mr. Yeatman for more than thirty years. One was a college friend of his and others, like myself, became acquainted with him when he used to visit Colorado, in the '80s. Our glimpses of him were few. Like most of us who were then getting our youthful training, he was flitting from place to place and except when we were caught in some eddy that detained some of us together our courses did not often intersect. Then came the time in the '90s when he disappeared from the sight of most of us who remained behind. This was when he joined the great hegira of American engineers to South Africa. He remained out there for ten years. I am obliged to skip that part of his career—I did not go to South Africa—but some of our colleagues, who did go there and who were associated with him, will tell of his important work and his professional development in that country. I leave that for them to elaborate upon.

He returned to the United States full-grown. It was well for him and well for our industry that he did come back just then. Our industry was in a transition stage when big men and especially administrative men were needed.

It was about 12 years ago that the copper mining industry was entering upon a fundamental change. It is true that for a long time previously our operations had been becoming bigger and bigger, our knowledge of engineering had been improving, and mining had been in the process of conversion into a recognized business, instead of being the gamble of the lucky strike. If it had not been for such real progress in the art, if it had not been for the experience in real mining engineering, gained in South Africa and elsewhere, Jackling and Requa and others

might have had the conception of digging low-grade ore at the rate of 10,000 tons a day, of putting in \$10,000,000 worth of plant to start with, but investors bold enough to furnish the money would have been hard to find.

Mr. Yeatman was naturally called to administer one of the first of these great companies—the Nevada Consolidated. From the viewpoint of fully integrated concerns—concerns equipped to do everything from the mining of the ore to the smelting of the concentrate—it was the first. Mr. Yeatman did not enter into this great enterprise at its very beginning. The Nevada Northern Railway had already been built, and plans to a more or less extent for the mining, milling and metallurgical plant had been made, but when I had the pleasure of going over the ground with Mr. Yeatman in the summer of 1907 things were not very far ahead. While he was not the creator of this as an engineering and commercial project, he was the organizer who made it a going concern. What opportunity did an engineer administrator ever have that was more brilliant and what other case is there of such a splendid fulfilment of promises? This was a task of the first order of magnitude—the administration of a railway 150 miles long, of a mine with new problems that was called upon to produce 10,000 tons of ore per day, of a mill that had to treat that immense tonnage of ore and a smelter to convert the concentrates into copper, the whole development representing an outlay of some \$10,000,000 on the part of courageous investors who had to risk all that money before they could expect any returns. If the Nevada Consolidated had been a failure, the development of all the subsequent porphyry mines would have been under a cloud, and the country might have been deprived of their copper at a time when the metal was greatly needed. But the Nevada Consolidated was not a failure. It was a spectacular success, and in being such it justified not only the hopes of its stockholders, but also it inspired confidence in other enterprises of a similar kind. The debt that is owed to Mr. Yeatman's splendid administration is therefore deeper and bigger than what concerns those who were interested in this particular enterprise alone.

After Nevada Consolidated was put in the way of running smoothly, Mr. Yeatman's annual reports as consulting engineer were models of what such reports ought to be. In the course of time Mr. Yeatman exhibited the supreme quality of an administrator; that is to say, the creation of such an organization that his own services were not constantly required and he could set himself free to undertake new things. The new things were

waiting for him in the shape of the Braden and Chuquicamata mines, in Chile, two of the great copper mines in the world, one of them probably the greatest. Mr. Yeatman's task at Chuquicamata, in its magnitude and its character, was even more stupendous than was his great task in Nevada. We may look upon Chuquicamata as the great triumph of modern mining and metallurgical engineering. For the treatment of a new kind of ore in a remote and inaccessible part of the world it was necessary to devise an entirely new metallurgical process, a process that was no less revolutionary than the production of electrolytic copper direct from the ore, which previously was not a successful metallurgical process anywhere, although numerous metallurgists had tried to make it so. In all of this work Mr. Yeatman would be the very last one to minimize the extraordinary value of the services of his colleagues, least of all those of Mr. Cap-pelen-Smith, to whom the new metallurgy was due; but Mr. Yeatman himself was the co-ordinator of everything, the administrator, and because he was such he surrounded himself with such able collaborators.

The test of any theory is the ability to prophesy and ascertain that results are in conformity with the prophecy. This is why we regard Chuquicamata as the great modern triumph of mining and metallurgical engineering. With the guidance of merely experimental work, its engineers and administrators were able to say that certain things were going to happen, and were able to say it with the confidence that inspired the investment of many millions of dollars; and the things did happen as they said they would.

Mr. Yeatman's way of accomplishing these things calls to my mind the words of John Ruskin, which express the spirit that must have governed him throughout his career: "We are not sent into this world to do anything into which we cannot put our hearts. We have certain work to do for our bread, and that is to be done strenuously; other work to do for our delight, and that is to be done heartily; neither is to be done by halves or shifts, but with a will; and what is not worth this effort is not to be done at all."

Now, because Mr. Yeatman has been inspired in that way and has worked in that way and because of strict adherence to his principles and to the very great accomplishments that he has achieved, which have been set forth in a bald way by our Medal Committee and on which I have tried to elaborate and depict somewhat more fully in my own way, and because of the recognition of these achievements by his fellow members in his pro-

fession, because of their common consent, their common expression that above everybody else he is marked out as the one pre-eminent for distinguished service in the administration of mines, in consideration of those ideas and in behalf of the Mining and Metallurgical Society of America it is my honor, Mr. Yeatman, and it is my pleasure, to confer upon you this medal. (Prolonged applause and three cheers.)



Mr. Yeatman.—Mr. Chairman and other friends: It had been my hope to be able to speak to you impromptu, extemporaneously, but this all takes my breath away and I find that instead of speaking in that way I will have to look at the notes that I had so carefully memorized. (Laughter.) If I had had a little abuse to start with I think I might have answered fluently, but when a person gives you praise you don't know what to do, you want to go off somewhere and hide, and hug it to yourself. I must therefore apologize for reading these notes. Between the time of first hearing the rumor and now—several months—when the presentation has actually been made, the time has not been long enough to overcome the feeling of being overwhelmed. It has been a severe shock, a most gratifying one, but still a shock.

I feel grateful indeed to have had this honor conferred upon me "by my peers, the men of my profession, the men whose language I speak." As a rule we object to being placed on trial by our so-called peers, for it means conviction, acquittal or a Scotch verdict, with seldom the accompaniment in any way of approval, and as you know peers in law are usually the habitués of the corner grocery whose trade is that of professional jurors. It is a distinction indeed to be classed with such men and women

as Mr. and Mrs. Hoover, Prof. Richards, Prof. Kemp and Mr. Mathewson. Such an honor is something to work for, long and laboriously, and when attained it represents the culminating point of a professional career, the height of one's ambition. After receiving such recognition it behooves one to crawl off and die (Laughter), clear out in some way completely, unless one could do something, as have my predecessors, something much better than I could ever hope for.

Really, the title of the honor conferred is more pleasing than any other that could have been chosen. I wouldn't have liked it to have been given in connection with geology, metallurgy or even noodleizing, as we call it, so I feel doubtful of the justness of the choice, for it is human nature to experience greater satisfaction in praise for doing something in which we really do not excel in than something we do. (Laughter.)

It doesn't seem that anyone would want knowingly to be placed in a position of having to listen to his own obituary; to have to keep still and hear a lot of his friends say things about him and not be able to answer back in the same way is trying, and what a position for a fellow when his swan song has been sung to be found flapping around in the old pond! (Laughter.) A farewell function is quite another matter and laudatory remarks are usual and quite in place, for the guest really does leave and if fate allows his return it is like a resurrection, but to have your life history told with the usual complimentary exaggerations and then linger on the scene is disappointing to one's friends, as one is apt to degenerate into a nuisance. (Laughter.)

At this period of the evening I feel like a drowning man who in imagination goes through his life history, but who suffers for only a few seconds; but here one must sit scared to death and have his life bared to view for a more or less extended period, not knowing what dreadful things are going to be related and everything one does really appears stale and unprofitable after it is finished. It makes one understand and have greater sympathy for the feelings of our children when some old friend comes to dine and the children know that the parents are going to tell tales of their youthful doings. The parents believe that such doings are wonderful, but it is trying for the youngsters. (Laughter.)

When listening to anecdotes at one's expense it brings to mind the sufferings of the poor prisoner who has to run the gauntlet and be swatted by everyone present, for he can't retaliate. Ordinarily in friendly gatherings one can take excep-

tions to the tale and say that it was really a mistake and the joke was on the other fellow, the story should have been told in this way or that way and so on; but, no, you must take it all without a contradiction or dissent. Abuse would make one flare with anger, while praise would make us flush with embarrassment. I suppose it is all for the best and one should at the end feel chastened, though uplifted, and let us hope that that horrible condition, the "big head," which fattens on approval or praise, may be checked, if not entirely obliterated.

So that too much may not be expected from a rather uneventful life, the following story may not be out of place. While feeling more than usually affectionate and hoping for the best, my little son, who is very fond of hunting and adventure, while walking through the woods with me said the following: "Daddy, did you ever kill a bear?" "No, I have seen a good many, but never hunted them." "Did you ever kill an elk?" "No, I don't believe I ever did, though a cowboy and I went out for meat for the camp once, he with an old carbine borrowed from an Indian and I with a .45 pistol. We shot away a lot of ammunition and finally downed a large buck, but I don't believe your father's shot was successful." "Well, then, Daddy, did you ever kill a man?" (Laughter.) "No, my son, I am happy to say I never did." He replied, "Too bad, you're not much of a hero." (Laughter.)

It makes me also think of the nigger at the country fair who sticks his head through the canvas while the crowd tries to paste him with a baseball. Unlike the nigger, however, I am well repaid for standing as a target for the deadly anecdote, and whether serious or humorous the anecdote is still a deadly weapon. I appreciate profoundly the presence of so many of my old time friends here to-night, for, when we have passed the prime of life, the friends made during the period of our intensive work count, I believe, more to us than the companions of our early youth. The young look ever ahead, in later years we consider more the present, and later still we have the three periods to consider and live over again in recollection as well as in reality our friendships.

Gentlemen, I thank you from my heart. Mr. Chairman, let our friends go to it and may the Lord have mercy on my soul. (Laughter and applause.)

The President.—Manifestly, Mr. Yeatman and myself are viewing these proceedings in two fundamentally different ways. Mr. Yeatman feigns to have in mind the colored gentleman who sticks his head through a hole in a curtain, while I positively have in mind, and I have so previously apprised my colleagues

to right and to left, the work of a painter who is going to paint a picture. As I have already stated in my preface, I should like myself to paint an adequate picture of Mr. Yeatman's career, but I recognize my deficiencies. In the first place, I am not a good enough painter, and, in the second place, I do not know enough. My recollection of Mr. Yeatman goes back a long time. I remember his coming to Leadville, Colorado, thirty years ago, but Mr. Yeatman's stay with us at that time was not long. He flitted about from one place to another, and then went to South Africa as I have previously related. Realizing my inadequacy to cover his entire career, to paint the kind of a picture that must be painted, I have taken pains to get those who can assist in the work, and fortunately we have with us one whose acquaintance with Mr. Yeatman is far longer than mine, whose relationship has been far closer, one who goes back to the very college days, and it is proper therefore that I should introduce him first to give the touches to the picture that we desire to paint. I have pleasure therefore in introducing to you our old friend, Major Mudd. (Applause.)

Major Mudd.—Mr. Chairman, our honored guest, and gentlemen: I have been told to paint a picture. If there is one thing I can't do it is paint. I never could draw a line without a T-square. Everything I say to-night is going to be on the square, perfectly true, you mustn't doubt a word. Memory goes back to one morning in September in St. Louis in 1879 when I was one of the freshman class reporting for their first recitation in mathematics in the classroom of Prof. Rees, whom some of you may remember. I was so seated that I could see the faces of all those present and naturally I was interested in the friends and associates of the future. I looked around and repeated the action and then fell to studying a face across the room near a window, a high brow, clear honest eyes, tanned cheeks, a little down on the lip—the same down is there still (Laughter)—it may have been kissed, but it has never been shaved; rather slight but erect figure, a yellowish brown checked suit and a little gold elephant in his necktie. That elephant we all learned to know for it became the basis of a nickname, "l'Éléphant."

When the roll was called the name Pope Yeatman made me very sure that I had picked a winner. General Pope's name was heard very much more then than it is now, and in St. Louis no name was more honored than that of Yeatman. I had the pleasure of watching that young man grow into one of the most honored members of his profession. I watched also that self-same virgin ornament on his lip develop, mature and achieve

the honor of gray hairs. I assure you, however, it wasn't always honored, although it was always prized by its owner, and when his classmates wanted excitement they would overpower him and get a pair of scissors and then his big eyes would flash fire just as they have blazed since with anger and scorn when dishonest and discreditable actions were discussed.

Some years ago, a wife, devoted and yet longing for a change, as wives will, made her husband promise before he returned from a long trip to China that he'd shave. On the outbound steamer he wrote back, "I'm afraid if I shaved my children wouldn't know me." When he got back as far as Yokohama he received a laconic telegram, "Don't shave." And he never has. (Laughter.)

In his youth a severe illness left a somewhat weakened physique. The weakness was overcome, however, by spending portions of a number of years at Fort Leavenworth and on the cattle ranches in the West. It was rather unusual that a lad of his years should be selected for the trying work of finding lost and strayed cattle. Day after day he would go off alone, seeing no one from the time he left camp until he returned in the evening. It was no hardship, it was rather a pleasure, but it showed courage and poise and a perfect confidence in himself to meet emergencies. It showed, too, a determination that was quiet, yet abiding, and was not disturbed by the lack of association, something that has carried him through many difficult situations since that time.

There was never any lack of independence of thought or action, but at times there was a lack of self-assertion during his earlier college years. The first five or six years after leaving college were of great benefit to him. He was thrown, not always pleasantly, into situations where he saw self-confidence and self-assertion in an exaggerated degree. He saw the advantages and disadvantages of it. His good judgment led him to choose a middle course, to his very great subsequent advantage.

As we grew to know him better in the college, we gave him our respect and our confidence for his sanity and reliability, and for his earnest efforts and for the excellent record that was maintained during the four years. There were no short-cuts or brilliant spurts attempted. His effort seemed to be that of sustained determination to do his full duty. It has been said that he took a post-graduate course in Deuteronomy. It is a mistake, he took that course in the kindergarten. He was past master when he came to the college.

One of his most striking characteristics, even in his youth, was his ability to get the other fellow's number and through that insight to get his goat. (Laughter.) He had the rare gift of making fun of one without leaving a sting behind. It wasn't art, it was kindness and charity of heart. He saw very clearly the little shortcomings and foibles and weaknesses of us all and at times would expose them to ridicule, but there was never anything unkind about it. His good judgment was one of the things that made him pre-eminently sane always, but you mustn't think he is a paragon or that his judgment was faultless. I remember one instance in which he failed utterly to foresee the course of action of one of our summer school teachers. We were in southern Missouri. We were occupying an entire upper floor of an old country hotel. The night was hot and all the bedroom doors were open. The instructor was an especially sound sleeper. The head devil of our little group had arranged a private earthquake and bombardment under the instructor's bed. In order to be perfectly sure he would get the full benefit of it a strong cord was tied around the sleeper's big toe. For some unknown reason Mr. Yeatman wasn't an active party that night, I don't understand just why it was, but when the earthquake came off the instructor's head got into the hallway just in time to see a white robed figure disappear into Yeatman's room. The guilty party was found feigning sleep in bed and Yeatman was pulled ignominiously from under the bed to suffer unjust disgrace. The instructor wasn't mollified, either, by the fact that a few days before he found a big, active lizard in his pocket and it had been traced to the same source.

Mr. Yeatman was born in St. Louis on August 3rd, 1861. He is the son of Thomas and Lucretia Pope Yeatman. He is of English and Scotch-Irish descent. His earlier schooling was obtained in St. Louis, New Haven, Connecticut, and Fort Leavenworth, where his uncle, Gen. John Pope, was in charge for a number of years. In 1883 he was graduated from Washington University with the degree of Engineer of Mines. For a year and a half after that he was employed at the St. Genevieve Copper Company's plant about a hundred miles south of St. Louis on the Mississippi River.

It is a far cry from the Nevada Consolidated and the Chile Copper to the little plant of the St. Genevieve Copper Co., one small stack, two little reverberatories, one for enriching the matte and the other for refining the copper. At that plant several of us earned our first wage after graduation, of \$1.35 a day, and with our earnings bought the first clothing purchased with

money earned by ourselves. Perhaps our distinguished guest will remember a suit of blue overalls made to order by the country tailor at a cost of \$1.25 a suit, but with youth and hope one can be as happy in a \$1.25 suit of overalls as in a forty dollar suit of khaki, and just as happy running a 20-ton blast furnace—yes, happier—than in running a ten thousand ton plant with an army of employees.

After leaving St. Genevieve he mined for gold and silver at Gage, New Mexico, in northern Sonora and Zacatecas, Mexico, and in Breckenridge, Colorado. Following that, he put in two or three years at the Doe Run Lead Mines in Missouri where he was superintendent of the mine, mill and smelter, I think then managed by Mr. Arthur Thacher. In 1891, he went to Joplin in charge of the properties of the Empire Zinc Co., and there he was associated with Mr. W. C. Wetherill. That association was extremely pleasant, as all of you may understand if you are fortunate enough to know Mr. Wetherill. Subsequent to that there was a period of two or three years when he was in independent practice, not connected with any of the important companies.

The year before going to South Africa he was married to Georgie Claiborne Watkins and their union has been blessed with three children. A very pretty little novel might be written with regard to that portion of his life, but such things are hardly for an occasion like this.

Absolute frankness and honesty with one's self in dealings with facts and conditions are much rarer than honesty in financial matters and in the ordinary daily affairs of life. Mr. Yeatman has the rare ability of seeing things clearly and dealing with them fully and frankly without any fear of what the result would be, ignoring all personal interest in the result, the only desire being that the final verdict should be proper. I believe Caesar said that the Huns had many admirable traits but that their power of judgment was lost altogether when their own interests were involved. Mr. Yeatman is the absolute antithesis of this. Few men can so fully efface themselves in dealing with facts and conditions and so accurately arrive at a conclusion no matter what the result may be.

The child is father to the man, but you can't make a silk purse out of a sow's ear. Thank God, sometimes a start can be made with material of the finest and rarest fiber and the fabrication can go forward under favorable conditions and skilled workmanship. Thus are masterpieces produced and to-night it is a privilege to pay tribute to an old, old friend. I have had many



blessings in my life but one of the most prized has been the friendship of that young man whose face attracted me in the classroom over thirty-five years ago. The ideals of his youth are still untarnished, his wit is still clean and kindly, his heart is still that of a child in freshness and purity, and all are deepened and enriched by a life of great accomplishment and unselfish service. (Applause.)

The President.—Mining associations in the past created fraternal feelings and associations that are akin to those that exist among the alumni of a college. I imagine that the old-timers who were together on the Comstock experienced that feeling in subsequent years, and similarly those who were at Eureka, Nev., but those associations were before the time of most of us. Our recollections, speaking generally, will not perhaps go further back than to the Leadville days. There is such a feeling among the old Leadvillians, who fondly remember their association thirty years ago, and when they get together they love to inquire about so and so, to talk about the events that happened during the time when they were together; and I suppose that the men who were together in the early days in Butte and other important mining districts experience a similar feeling and a similar joy in their reunions and in their reminiscences of the events that happened in the early stages of their careers. However that be, there is not any doubt that among the American engineers who in the early '90s went to South Africa and remained there for periods ranging from five to 12 years, the latter span of time I think covering about the major experience; there is no doubt that those men, and those men comprised a surprisingly large number of the leaders of our profession, have a very unique friendliness among themselves and a wonderfully interesting fund of reminiscences. Mr. Yeatman was prominent among that band and his friends who were with him there are present tonight in a very large number. Among them pre-eminent was Mr. H. H. Webb, and it is very fitting that I ask Mr. Webb to paint that part of the picture that we wish to draw now. (Applause.)

Mr. Webb.—The American Colony in Johannesburg at the time Mr. Yeatman and many of his friends who are here to-night, were residing there, was for a colony of its size, I should say, unique inasmuch as it was entirely composed of a number of men with their families, who were all interested in one and the same business or profession, whose education had been along similar lines, living in a new city which had but recently come into existence, many thousands of miles from their own homes and

country, and who, on account of their calling, education and situation, were thrown together in an intimate way which would have been hardly possible under other conditions.

We all know that there is no better way to try a man out than to live with him as it were—to come into almost daily contact with him, not only in business but socially and over a period of years. Here to-night are a number of those friends whose intimacy was formed during Mr. Yeatman's residence on the Rand and we have all become so attached to him, as well as to each other, that we feel that this honor which the Society is conferring on him, is to an extent shared by each of us.

Mr. Yeatman came to South Africa in August, 1895, and for several months was located in the Leydenburg District of the Transvaal, as one of the assistant consulting engineers of the Consolidated Gold Fields of South Africa, looking after prospecting, development and examination work for the company in that District.

Early in 1896, he took up his residence in Johannesburg as Assistant Consulting Engineer, particularly in connection with the Robinson Deep Mine, the first of the second row of Deep Level Mines and the deepest at that time to be brought to the producing stage, and of which he took charge of later in that year as General Manager, continuing also to act as Assistant Consulting Engineer for the Gold Fields. The mill at this mine, 120 stamps, with its cyanide equipment, started crushing operations in 1898.

In April, 1899, Mr. Yeatman was transferred as General Manager, to the Simmer and Jack Mine, one of the largest outcrop mines on the Rand. The mill, if I remember rightly, which was then being enlarged, was completed to its present capacity of 320 stamps before Mr. Yeatman left the property, which was in the latter part of August, 1899, when he took up his duties as Consulting Engineer and General Manager of the Randfontein Estates Gold Mining Company, Limited, a huge property on the West Rand, through which I believe the reef outcropped a distance of six or seven miles, and from which a number of subsidiary companies had been formed. During Mr. Yeatman's management, if I remember rightly, there were four mills of 100 stamps each, in operation on the property, and as a whole it was an enterprise liable to tax the ability of any man to manage, particularly as the controlling factor or chairman, then J. B. Robinson, now a Baronet, was not noted for his amiable characteristics. Mr. Yeatman occupied his position at this property until June, 1904, when he left the Rand to return home, and it speaks

volumes for his ability that he was able to control and handle the property for so long a time under such a critical eye as that of the Chairman.

The period that Mr. Yeatman spent in the Transvaal, from August, 1895, to June, 1904, practically nine years, was an eventful one for South Africa, and the gold mining industry of that country. The development and adoption of the cyanide process to the ores of the Rand was carried forward—the efficiency of the milling plants was improved—problems of deep mining were discussed and the deeper level properties came more into prominence, and naturally Mr. Yeatman was in the thick of all developments going on.

The now historical Jamison Raid came off, disastrously for the raiders, and for a time afterwards it was a mark of prominence to have been in jail—a distinction Mr. Yeatman escaped on account of living in Leydenburg. Later with the Boer War, the map of South Africa was changed, and we were scattered for a time but never out of touch with one another. During the later stages of the Boer War, when many of us had been able to return to the Rand in the interests of the mining companies we were associated with, I spent a week-end of one night with Mr. Yeatman at the Randfontein Estates. The hostilities had developed then into a more or less guerilla warfare on the part of the Boers, and most of the mines, especially the outlying ones like the Randfontein Estates, were guarded by volunteer troops which had been organized into the Mine Guard, and officered largely by officers of the mines. Mr. Yeatman was the Commander, Captain, or Major, I forget which, of the troops stationed on his property. During my visit, and especially during the night, he was unremitting in his duties and inspections as commanding officer, of sentries and the outposts, for the property was a large one. He gave the same thorough care and attention to his duties as military officer as he did in carrying out the duties of his profession as Consulting Engineer and Manager. I slept in his house just outside the sentry lines. He dropped in to see me once or twice during the night to see if I was alive, but the next day I found it very convenient to return to Johannesburg.

When Mr. Yeatman left the Rand, the Colony lost one of its ablest engineers and most respected members, and lost also in Mrs. Yeatman one of its most charming hostesses, and the good work that he has done since returning home has simply been a continuation of that which he carried out during his stay in Africa. I don't believe he has enjoyed his dinner much to-

night because I know he is a very modest man and he probably thinks we have talked too much about him, but on such an occasion one cannot help it; but perhaps deep down in his heart there is a little conceit—there would be in mine if I were in his place tonight. I have seen this medal and I don't think much of it, especially on the reverse side—there is a lady partially disrobed. Now if you take our ordinary two dollar bill, you will see a lady on the reverse side, also partially disrobed, and underneath it reads—"Bearer on Demand." (Laughter.)

Now, just one thing more. In the early days of the discovery of the Rand Gold Fields, J. B. Robinson, whom I have mentioned before, negotiated for and bought the farm Turfontein from the Boer farmer then owning it—it was on this farm that such properties as the Robinson and Robinson Deep, and others, were afterwards developed. It is said, but I do not vouch for the truth of this, that when payment was made for this farm by either Mr. Robinson or his agent, the farmer, who had no faith in checks or bank notes, insisted upon being paid in gold—English sovereigns—the only money he knew, and he had not seen many of those at that time. The price agreed upon was something like 10,000 pounds. Payment was made by counting out from the bag containing the sovereigns, first one thousand sovereigns one by one on the table in the farmer's kitchen. When the first thousand had been counted out, the buyer remarked: "There is a thousand sovereigns." He then counted out one more sovereign, saying "2," another one saying "3," another one, saying "4," and so on up to the price named (say 10,000) and when he reached "10," remarked there are your ten thousand sovereigns which closed the deal, and the deeds passed. Remember gentlemen, Mr. Yeatman had been associated with Mr. Robinson for four or five years. Remember also that many of his intimate friends had been in jail. There is an old saying, "You can judge a man by the company he keeps." (Laughter and applause.)

The President.—Mr. Webb was in South Africa, but has not painted just the picture that I wanted him to do. He dwelt a little too much on J. B. Robinson and not quite enough on Pope Yeatman, and by his last remarks he has intimated a dubious situation. Therefore, I feel it necessary to put some other touches on the South African part of the picture, and I am therefore going to ask our old friend Mr. Leggett to assist in this. Now, Tom Leggett is a mighty good fellow; he is always ready to help on occasions of this kind, but I experience just a little bit of difficulty in getting him to come forward. He reminds me

sometimes of the Baptist preacher who was exhorting his congregation. He said:

"Now, breddren and sisters, come up to the altar and heb yo' sins washed away."

Everybody came but one man.

"Why, Brudder Jones, don't yo' want to heb yo' sins washed away?"

"I done had my sins washed away."

"Where heb yo' had yo' sins washed away?"

"Ober at de Methodist Church."

"Oh, Brudder Jones, yo' ain't been washed; yo' jest been dry-cleaned." (Laughter.)

Now, I want our friend Leggett to wash away his sins and assist in the final painting of the South African picture, to amplify Mr. Webb just a little bit, even if only to the extent of five minutes or perhaps four minutes. Mr. Leggett. (Applause.)

Mr. Leggett.—Mr. President, Mr. Yeatman, fellow members and honored guests: When I found, Mr. President, that you had put a stenographer alongside of me tonight I felt a little frightened, and I was about to make a wager with Mr. Huntoon that I'd stop his writing, because I have had that happen before. A number of us have lived in countries, especially in one dear old country, where they are all mighty good fellows but where they have an idea that, after dinner, especially a mining dinner, the great digestive is statistics, and all the reporters become very busy as soon as the first speech starts and the figures are ladled out at you. At one of these, I remember I was (because of the absence of Mr. Jennings or others more worthy) called upon to reply for the engineers, and not having been educated along their line of thought as regards a good digestive after dinner I started in with a little story. There wasn't a blooming reporter that put down a single word of my speech! (Laughter.) There was nothing I said that was worth putting down. I don't blame them, and I have no doubt that what I say tonight will have this same effect.

Now you, Mr. President, have dwelt pretty fully upon what you expect us to do in this matter of painting, but I don't quite know whether you want us to attempt what high poetical authority has said is both foolish and impossible, namely, "to paint this lily" (already adorned with a gold medal), or whether you mean that we shall extend the scope of our efforts in that direction to include a little camouflage. Personally, I would incline toward the latter, not only to save the blushes of the re-

cient, but because I know that there are better painters on the job than myself. It was only yesterday I was told that you wanted me to make some few remarks tonight, and subsequently I learned that one of the gentlemen—I don't know whether it be one who has already spoken or who has yet to speak—had made up many of the vital points of his speech while he was in the dentist's chair, and I came to the conclusion that if the Society would stand for a speech drawn up under such painful conditions it would even put up with me and anything I might have to say, aware, as it already is, that I am like the well known Ohio River steamboat with the small boiler and the too large whistle, so large a whistle that, when it blew, the boat couldn't run and when they ran the boat they couldn't blow the whistle; which means that when I talk I can't think and when I think I am unable to talk. (Laughter.)

In spite of these disqualifications, however, I propose to say one or two words about the fortunate and deserving recipient of this year's gold medal of the Society, because I consider it an honor and a privilege to give expression to my appreciation of the action of this Society in conferring this medal in the way it has done.

When in Johannesburg I, unfortunately, was not thrown into close association with Mr. Yeatman, but he was an important member of our little brotherhood of engineers in that foreign country, where the ties of friendship were strengthened by our distance from home and by the congeniality and sympathy that existed amongst us.

As Mr. Webb has already told you the detail of Mr. Yeatman's varied and responsible work there, there is nothing for me to add, except perhaps one little incident, which, if there be time, I will tell you of a little later, if you are not too wearied.

The Randfontein group of mines of which Mr. Yeatman was in charge on the western flank of the Witwatersrand formed a very large property, requiring a comprehensive grasp of its possibilities to bring it to its highest stage of development and production, and this work he accomplished most successfully.

Just south of this Randfontein group, the reef-series (or vein series) was cut off by a fault and the quartzites in which they lie were further covered by later limestones, so that the continuation of this gold bearing vein-system could not be traced.

Professor Becker of the United States Geological Survey made an exhaustive study of this condition, spending several months in the field, and he accompanied his final report to my firm with a model showing the position of the fault and the ad-

jacent conditions. The accuracy of this work done in 1896 stands unchallenged today, for in so far as I am aware the Randfontein reef series have not been definitely located south of that fault, nor have any mines of economic value been established there, and in this I am sure Mr. Yeatman will bear me out, for I know of no one who would have been more keen than he to enlarge his company's property by the successful location of the continuation or extension of the reefs (or veins) to the south and west.

The mining engineers of the Rand are indebted to Professor Becker, as also to other capable geologists, for the excellent and informing work done by them in this most interesting gold field, and they are glad to make public acknowledgment of the obligation.

Mr. Yeatman and I ran across each other once in the City of Mexico and that was the only time I ever saw him annoyed, though in a mild way. He had been engaged in examining a silver mine in a nearby district, where one of the interested parties connected with the property undertook to tell him what the mining and milling costs ought to be. He drew the line at that and with great justice. Later on I had the pleasure of going with him through the big copper mines with which he was professionally connected, and I observed in him there, as elsewhere, the same characteristics that have contributed largely to his wonderful success, namely, untiring devotion to his work and absolute singleness of purpose. These qualities form the mainspring of his success and the lesson that contact with him invariably teaches, while in his relations with other engineers, he inspires the greatest respect and admiration; admiration for his great abilities, deep respect for him as a man.

Referring to those who have worked with him as his associates, his assistants and on his staff, he has improved and raised their professional ideals by the high standards of excellence that his own conduct has held before them, while he has unwittingly commanded from them a degree of loyalty, devotion, and spontaneous affection, such as it has been the lot of very few engineers to inspire in their subordinates.

I repeat it is a great honor to be given this opportunity to express my esteem for him and I trust that the Society may always show as excellent judgment in the selection of future recipients of this honor as they have done this year and in the past. (Applause.)

The President.—In regard to Mr. Yeatman's career, we are getting down now to recent events, events that are more nearly

within the memory of many of us. To elaborate on these I have the honor to introduce the President of the American Institute of Mining Engineers, Sidney Jennings.

Mr. Jennings.—Mr. Chairman, fellow members, Mr. Yeatman and guests: When Mr. Ingalls told me that he was going to call on me to add my meed of praise to Mr. Yeatman as a man and appreciation of his work as an engineer I was greatly pleased. The first time that I saw the name of Pope Yeatman was in South Africa, signed to a report on the Robinson Deep, and one expression in that report, in addition to the unusual name, fixed my attention upon the man. Apparently there had been an estimate made by a mechanical engineer of the cost of equipment of that mine to bring it to that producing stage which was desired. Mr. Yeatman had likewise made an estimate of the cost and was so astonished at the difference between what he thought ought to be the cost and what the mechanical engineer said the cost would be that he desired his chief to adjudicate between them. Such a showing of independence of the mechanical engineer in his own domain by a mining engineer led me to believe that here had arisen a new star in the mining field who was well worth watching.

Mr. Yeatman returned to America among the first of the American engineers who had formed a group in South Africa, a most closely allied group from the fact that the product they produced was a non-competitive product and that all information and all knowledge conducive to the increase of mining and metallurgical skill was freely and openly given one to the other. That free exchange of ideas permeated the engineering profession in South Africa and extended from there to other parts and grew to the extent that it has now attained. Mr. Yeatman returned considerably before I did to America, I only returning in 1907, and in that year, when the souls of men in business were tried by the tremendous drop in the price of metals, when engineers who had estimated on enormous expenditures had to re-study the facts of their building to see if they were built on facts, Mr. Yeatman invited me to go out with himself and Mr. Perry to see the then stage of Nevada Consolidated. I was here in the interest of some English capitalists who desired to find out what America was doing.

We came to Ely and saw the enormous sign that then graced the Ely station, "Watch Ely Grow!" At that time it consisted of one hotel, a very few houses and the start of a foundation for a large industrial enterprise. From there we went to the Veteran Mine which had been shut down and the houses were

practically deserted. A large establishment apparently had been laid out, but the courage and the actual cash to carry on such an enormous enterprise, when copper had been reduced in value from twenty-six cents in May to eleven cents in September, were at that time not available. Now, Mr. Yeatman and Mr. Perry and myself camped out in a house which had some mattresses and blankets and we managed to get some provisions at the boarding house. Yeatman was the first man to get up in the morning to make the fire. Now, that impressed me very strongly as being a characteristic example of Yeatman's way of doing things. He gets up in the morning and lights the fire and it burns, peace is restored to the tired colleague and cheerful work is done all the rest of the day. Mr. Yeatman's proven ability and his absolute conviction that all the facts and figures on which the Nevada Consolidated were based could be realized carried the day, and Nevada Consolidated was finally given all the money that was required, the mine began to develop and was built up to the huge success which it now is.

These same characteristics of courage and absolute certainty of knowledge of facts have enabled Mr. Yeatman to build up those two great monumental copper properties in Chile. One of these is the largest body of copper ore developed in any mine in the world, it is a monument to Mr. Yeatman's administrative ability and will last for hundreds of years. A sane outlook on life, a thorough willingness to take responsibilities, a generous and just sense of the appreciation of the merits of his colleagues and assistants, a human loveliness, has made Yeatman the honored man and the distinguished engineer that he now is. (Applause.)

The President.—It is fitting to conclude our addresses by one from Mr. Yeatman's latest associate, one who has been associated with him in business, not as an engineer; I mean that their relationship has been that between the financier and engineer rather than between fellow engineers; and one who also has been most closely connected with him in the very important patriotic work to which both of these men have been lately and ever since the beginning of the war devoting their whole services in Washington. I have pleasure, therefore, in asking Mr. Eugene Meyer to make a few remarks. (Applause.)

Mr. Meyer.—Mr. Chairman, Mr. Yeatman, Gentlemen: As it is getting late, I shall not detain you long, but I am very glad indeed to have an opportunity to join your distinguished

Society in paying a tribute to my friend and associate, Mr. Yeatman.

Many years ago I pinned the medal of my faith on him. In 1909, in the very early days of the Braden Copper Company, I undertook the responsibility of placing before the public several issues of Braden bonds. Up to that time no important offerings of copper securities based on foreign properties had been made in the United States. As a matter of fact, even the now great Utah and Nevada were not, as yet, brilliantly successful. The financial depression of 1907 which you have mentioned had cast a cloud over the entire securities market and had affected the large porphyry copper properties whose development had been slower and more costly than anticipated. Yet, after studying the Braden reports with Mr. Yeatman, I became convinced of the soundness of the property and took the responsibility for it before the public. While Braden, too, took longer and cost more to develop, as mining properties sometimes do, in the long run it turned out bigger and better than even Mr. Yeatman claimed at the time.

Subsequently, the Chile Copper Company appeared on the horizon. While the members of your profession may not have been exactly skeptical, I believe they were waiting to be shown; I know that a good many bankers considered the proposition, talked with the engineers, and they also waited to be shown. Many of you have wondered that as a banker I undertook the responsibility of placing the Chile Copper Company before the public before operations started and when not a pound of copper had been turned out. Well, I can only say that Mr. Yeatman's presentation of the facts concerning the ore bodies and the process for treatment were entirely convincing to my engineers and myself. The company is now producing successfully, and while it took longer and cost more than we at first anticipated, I believe it is bigger and better than Mr. Yeatman ever represented it to be. That seems to be a habit of his in judging properties.

Both in the case of the two foregoing properties, and in other business associations, I have always found Mr. Yeatman an accurate and conservative engineer, courteous and obliging, and always willing to take the time to go into the technical details which a layman may be slow to grasp. I can only say that I hold among the most pleasant of my business recollections the memories of my association with the engineer you are honoring here tonight.

When last spring I went to Washington and gave up business for more important work, I naturally drifted into the activities in which my experience promised to be of some use.

It was not, however, easy in the beginning. There was no organization, and there were conflicting schools of thought. Some held that just as the boys are drafted and sent to the front, so should property be conscripted; others held that all matters of price and production should be left alone and the law of supply and demand be allowed to reign supreme. A few of us felt that a middle course might be desirable, and that we could do more by enlisting the voluntary patriotic co-operation of business men than by attempting conscription of industry with the complications such a course would involve. We felt, too, that since economic laws must prevail again after the war as they did before the war, we should avoid attempts to suspend them arbitrarily if the desired results could be obtained by voluntary co-operation, with the necessary governmental control and regulation.

In considering these subjects from the standpoint of the non-ferrous metals, our minds naturally turned to Mr. Yeatman. It so happened that Mr. Baruch, who was in charge of the Raw Materials Division, and Mr. Brookings, who was in charge of the Finished Products Division of the War Industries Board, were old friends of Mr. Yeatman, and because of their confidence in him he was at once acceptable to all. In his capacity as technical advisor, Mr. Yeatman took part in the conferences, studied carefully our various problems, and I know that he has been absolutely firm in his determination to give the best that is in him. Because of his success in this capacity, I know that Mr. Baruch made a very happy choice when he requested Mr. Yeatman some few weeks ago to undertake the direction of the Non-Ferrous Metals Section. Of course, now that I see that the head of the Non-Ferrous Metals Section is being presented with a medal, I have some regrets that I did not wait a little longer before relinquishing that position. (Laughter.)

Mr. Yeatman, you will remember that early in our discussions of the metal industry one of the most important points to me was the future of the industry as a whole. The questions of raw material supplies have to a greater degree than ever before risen to prominence in the economic consciousness of all countries. From literature coming from France and from England, and even some from Germany, though the latter is much harder to obtain, I find that the raw materials supply is unquestionably assuming a position of paramount importance in the

minds of the reconstruction committees and other organizations charged with the economic futures of these countries.

Our position in these matters is of course strong, as far as our own domestic needs are concerned, though we are obliged to rely on foreign countries entirely for a few special materials. In two respects we are, of course, especially strong—cotton and copper. Cotton is a product of the soil and we hold our supremacy by virtue of soil and climate. In copper, our supremacy comes in part only from the ore bodies in our own country, because we are now perhaps as prominent in foreign copper fields as in our own.

At this time when we are all studying the future of foreign trade, let us note that the mining and metallurgical industry of our country has great achievements to its credit today, and that it is at the same time charged with the duty of expanding our foreign position in the future. More than in any other branch of industry that I can recall, American brains and American methods have, in your profession, proven their claim to the first position in the world. With all their kultur, education and system, we hear little of German mining engineers. Whether for South America or for Africa, the call is for American mining engineers. Whether they want them or not, they have them, and I hope they will continue to have them.

We should, therefore, continue mindful of the future of the mining and metallurgical industry. In the adjustments that are to come after the war, about which we cannot think too definitely because our first business is to beat the Hun (applause), the question of our position and control of raw materials, and particularly of metals, will be presented in an entirely new form. Reading current literature from abroad, it is clear that there will be an attempt to make the subject of raw materials a matter of international agreement, and an international agreement on supply may involve an international agreement on prices. Now, it may be looking very far ahead, and perhaps these developments will not come soon, but the vital necessity of raw material supplies and the trend of thought, revealed by the discussions now going on in Europe, indicate to me that the foreign governments intend to have a voice in formulating the conditions under which their products will be exchanged for our raw materials. As engineers, operators or bankers, we must look ahead and be prepared to meet this problem.

Your Society has, I know, undertaken some war work as an organization. Your distinguished member, Mr. Yeatman, is now taking up, in addition to the domestic non-ferrous metals,

questions of supply of certain minerals in which shortages have developed on account of the shipping situation. I believe that your organization may well interest itself with him in this work and perhaps you may help him in the solution of some of the problems he will formulate and present to you.

Gentlemen, I thank you for this opportunity of meeting with you; many of your faces have long been familiar; others have become known to me in the course of the last year in Washington. I take this occasion to wish you, your Society, and your honored guest, every success in your patriotic work, which is of the greatest importance in the matter of our winning the war. (Applause.)

The meeting adjourned at 11:15 p. m.

LOUIS D. HUNTOON,
Secretary.

CHANGES OF ADDRESS.

Allen, John H.....	Walpole, Mass.
Bain, H. Foster.....	U. S. Bureau of Mines, Washington, D. C.
Clark, Will L.....	P. O. Box 447, Riverside, Calif.
Clements, J. Morgan..	Bur. of For. & Dom. Comm., Wash., D. C.
Crowell, Benedict	War Department, Washington, D. C.
Farish, John B..	"Los Pinitos," P. O. Box 278, San Mateo, Calif.
Fuller, John T.....	505 Park St., Honesdale, Pa.
Graton, L. C.....	Copper Prod. Com., 60 B'way, New York
Jennings, Sidney J.....	120 Broadway, New York
Kirby, E. B.....	253 W. 95th St., New York
McMeekin, Charles W...	Army War College, Washington, D. C.
Queneau, A. L.....	The Kuay, Wallsend-on-Tyne, England
Requa, M. L.....	2306 Massachusetts Ave., Washington, D. C.
Rogers, A. P.....	Ray Cons. Copper Co., 25 Broad St., New York
Sharpless, F. F.....	17 Madison Ave., New York

PERSONALS.

Ralph Arnold, as announced in the public press of April 3, has been designated by Internal Revenue Commissioner Roper as one member of the Board of Tax Reviewers. This Board has for its specific object the solution of the many complications in connection with the administration of the War Revenue Act.

H. Foster Bain, who, as noted in the March BULLETIN, was returning from China, has arrived, and is now fulfilling his duties in Washington as Assistant Director of the Bureau of Mines.

H. M. Chance, on April 2, presented a paper on "A New Method of Separating Slate from Coal" before the Engineers' Club of Philadelphia.

J. Morgan Clements is temporarily a resident of Washington, and is associated with the Bureau of Foreign and Domestic Commerce of the Department of Commerce, with the official designation of Trade Commissioner.

G. H. Clevenger's name appears as the author of an article in the *Engineering and Mining Journal* for April 20, entitled "Flotation vs. Cyanidation."

B. Britton Gottsberger arrived in this city on March 28 and is still in the East, but much of the time in Washington.

L. C. Graton has moved to New York temporarily, to carry on his work as a member of the Copper Producers Committee.

Kuno B. Heberlein has, according to a recently published notice, resigned the presidency of the subsidiary Mexican companies of the American Metal Co., Ltd.

D. C. Jackling has been made a director of the Nova Scotia Steel & Coal Company of New Glasgow, N. S.

Sidney J. Jennings, C. W. Goodale and Bradley Stoughton attended a special meeting of the Montana Section of the A. I. M. E., held at Butte on April 6. On April 8, the two latter were present at a similar meeting in Spokane, under the auspices of the Columbia Section.

J. F. Kemp, whose office is now in Tulsa, Oklahoma, has recently been in Montana on professional work.

C. H. Macnutt, lieutenant in Canadian troops, sends word to the Secretary from England. He is in active service with the British Expeditionary Force, and apparently at present resident engineer of one of the aerodromes.

W. W. Mein, according to recent announcement, has undertaken certain work in connection with the fertilizer industry for the Department of Agriculture.

C. W. Merrill, who it will be remembered has been for some time a member of the Food Administration staff, is acting as chairman of the advisory committee which is assisting W. W. Mein in his work for the Department of Agriculture.

A. L. Queneau, according to a recent announcement, is now in England in association with the Chloride Syndicate Ltd., located at Wallsend-on-Tyne.

M. L. Requa, at the head of the Oil Division of the Fuel Administration, was in consultation, early in the month, with the wire-rope manufacturers with reference to the coming increased demand for wire-rope in the oil and gas industries.

Geo. S. Rice, has written an article for the *Engineering and Mining Journal* on the "Cement Gun in Mining Work." This article is printed in two installments, in the March 30 and April 6 issues.

A. P. Rogers, since the first of the year, has been in war service in connection with the Materials Department of the Signal Corps. This keeps him in Washington much of the time.

F. F. Sharpless, beginning with April 15, was absent at Hamilton, Canada, for a week's professional trip.

S. F. Shaw, who has been absent in Mexico, is now making a professional tour in Nevada.

E. Gybbon Spilsbury is back from Cuba after spending two months in investigating the manganese situation.

J. E. Spurr, who has been residing in Washington for some months, has accepted appointment on the Shipping Board and is representing that Board on the Committee on Mineral Exports and Imports. Mr. Spurr, as already reported, also represents the Shipping Board on the Joint Information Board on Minerals and their Derivatives, of which Mr. Pope Yeatman is Chairman.

J. B. Tyrrell left Toronto early in the month for Tulsa, Oklahoma, on professional work. He is to be absent from Toronto for some weeks.

G. D. VanArsdale sends a letter to the *Engineering and Mining Journal*, under date of March 26, to discuss the determination of "oxide" copper in ores.

C. M. Weld, who as already announced has been in Cuba on one of his periodical visits, is now back at his office.

Bulkeley Wells has recently been in Oklahoma on a professional trip with reference to certain mines in the Joplin district.

MEMBERS OF THE SOCIETY WHO HAVE BEEN CALLED INTO THE SERVICE OF THE U. S. GOVERNMENT AND THE ALLIED ARMIES.

Lawrence Addicks.....Member, U. S. Naval Consulting Board
Ralph Arnold.....Member, Board of Tax Reviewers
Percy E. Barbour.....Capt., Reserve List, N. G., N. Y.

MINING AND METALLURGICAL SOCIETY OF AMERICA

Edwin S. Berry.....Capt., 27th Engineers, O. R. C.
 Alfred H. Brooks.....Capt. of Engineers, O. R. C.
 Reginald W. Brock.....Major of Canadian forces
 Gelasio Caetani.....Capt., 1st Reg. of Engineers, Italian Army
 March Frederick Chase....Expert, National Council of Defence
 Will L. Clark.....Federal Fuel Administrator, Arizona
 J. Morgan Clements....Bur., Foreign and Domestic Commerce
 Welton J. Crook.....Officers' Training Camp
 Benedict Crowell..Major, Eng. O. R. C.; Asst. Secretary of War
 W. B. Devereux, Jr.....Capt., Aviation Section, S. O. R. C.
 J. S. Douglas...Maj. and Dir. Warehouses, American Red Cross
 A. S. Dwight.....Major, 1st Res. Engineers, O. R. C.
 Baird Halberstadt..Fed. Fuel Administrator, Schuylkill Co., Pa.
 W. L. Honnold.....Am. Dir., Com. for Relief in Belgium
 Herbert C. Hoover.....U. S. Food Administrator
 John D. Irving.....Capt., 1st Res. Engineers, O. R. C.
 D. C. Jackling.....Dir. U. S. Gov. Explosives Plants
 Donald M. Liddell.....Chief Eng., War Credits Board
 Charles W. McMeekin.....Major of Engineers, O. R. C.
 C. H. Macnutt.....Lt. of Engineers in Canadian forces
 W. W. Mein.....Assistant to the Secretary of Agriculture
 C. W. Merrill....Div. of Chemicals, U. S. Food Administration
 H. G. Moulton.....Engineer, War Industries Board
 Seeley W. Mudd....Maj. and Asst. Dir. U. S. Gov. Expl. Plants
 O. B. Perry.....Lt. Col., 27th Engineers, N. A.
 Joseph Hyde Pratt.....Lt. Col., 105th Engineers, N. A.
 A. L. Queneau.....Late of the French Army
 M. L. Requa.....Chief of Oil Div., U. S. Fuel Administration
 Edgar Rickard.....U. S. Food Administration
 A. P. Rogers.....Materials Dept., Signal Corps
 W. L. Saunders.....Chairman, U. S. Naval Consulting Board
 Millard K. Shaler.....Hon. Sec., Com. for Relief in Belgium
 J. E. Spurr.....U. S. Shipping Board
 S. C. Thomson.....War Export Board
 Arthur L. Walker....Con. Met. to Chief of Ordnance, U. S. A.
 William Young Westervelt..Chairman, War Minerals Committee
 Pope Yeatman.....Con. Engineer, War Industries Board

DIED IN THE SERVICE OF HIS COUNTRY.

William Hague.....January 1, 1918

Mining and Metallurgical Society of America

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ANNOUNCEMENTS.

Meeting of Society.—The proceedings of the meeting of April 18, which was called especially to give consideration to the pending legislation for Government control of minerals, are reported in full in this issue. These minutes, together with those of the San Francisco and New York Sections, indicate with what importance this subject of a minerals administration is viewed.

Section Meetings.—The San Francisco Section, at the call of the President, held a meeting on April 16, to give the local members an opportunity to thoroughly discuss the proposed minerals-control bill. No prior announcement of this meeting in the BULLETIN was possible.

As will be noted by reference to the minutes of this meeting, appearing on another page, the local section of the American Institute of Mining Engineers joined forces with the San Francisco Section of the M. and M. Society on this occasion.

As explained in the last issue of the BULLETIN, a meeting of the New York Section was held on April 18, after adjournment of the special meeting of the Society on that date, in order that formal opinion might be expressed regarding the minerals administration act.

A meeting of the New York Section was held also on May 17 at the Columbia University Club. An informal dinner was served, and immediately thereafter, Major Bashford Dean of the Ordnance Department gave a talk to the members on "Alloys and their Significance in the making of Modern Helmets and Body Armor". A subsequent number of the BULLETIN will contain a more complete report of this meeting.

Council.—A full report of the Council meeting of April 18 is printed elsewhere in this BULLETIN. Immediately following will be found also the minutes of a meeting of the Executive Committee, held on April 25, called by the President in lieu of a Council meeting, for which a quorum could not be obtained at the time.

A Council meeting was held also on May 17, the minutes of which will be printed next month.

Minerals-Control Bill.—Much the larger part of this BULLETIN is devoted to the minerals administration bill, which in its initial form was drafted by the War Minerals Committee, and was thus sent to the members in a supplement to the February BULLETIN.

This measure as slightly modified in committee was passed by the House of Representatives on April 30, after elimination of the price-fixing provision and the reduction of the revolving fund from \$50,000,000 to \$10,000,000, and according to latest information, is now before the Senate Committee on Mines and Mining.

Copies of the House bill (H. R. 11259) as introduced by its committee, may be had by request to the Secretary. A very few copies of the Hearings before the committee are also available.

Farming at Mines.—Apropos of the Society's action, of something like a year ago, in urging the mining fraternity to co-operate with the Department of Agriculture in the promotion of agricultural activity, it is interesting to note that, according to the *Engineering and Mining Journal*, the Inspiration Consolidated Copper Co. has now 500 "Victory Gardens" under cultivation.

Here is an example that all would do well to follow! Communications from members as to what is being done, this year, in the different mining districts and at individual mines will be welcomed by the Secretary.

COMMUNICATIONS.

"Eyes of the Navy."—The letter which is printed below is evidence that the Navy's appeal for field glasses has not fallen on barren ground entirely. It is the Secretary's hope that other responses have been made to the circular letter on this subject which was issued to the members.

Mr. Louis D. Huntoon,
115 Broadway,
New York City, N. Y.

April 25, 1918.

Dear Sir:

Your prompt and patriotic response to the NAVY'S call for binoculars, telescopes and spy-glasses, is most appreciated. The glasses will be very useful in the prosecution of Naval Operations until victory is won.

At the termination of the war, if possible, every effort will be made to return them to you when it is hoped that you will feel compensated for any evidence of wear, by the knowledge that you have supplied "Eyes for the NAVY" during a very trying period.

On behalf of the NAVY, I wish to thank you most heartily.

Very respectfully,

F. D. ROOSEVELT,
Assistant Secretary of the Navy.

Crippled American Soldiers.—As will doubtless have been noted, the public press has been publishing, during the past two months, much information with reference to the rehabilitation of the permanently injured soldier. From even a cursory examination of this ever increasing supply of news items, it becomes apparent that preparations are being made by any number of official and semi-official associations, hospitals, clinics and the like, for the treatment of the maimed soldier, his return to some civil employment, or both. But although it is natural to suppose that any, and all, of these organizations will be called upon to render assistance, it seems to be the general opinion that the Federal Government must take the initial step, either through the office of the Surgeon General of the War Department, or by special legislation.

In addition to a very considerable amount of literature devoted to the reconstruction, re-education and re-employment of the disabled soldier, further communications have also been received, excerpts from which are given below:

Calvin W. Rice.—You can expect our Society to follow this up actively, and as an evidence, I went over to Boston last week and revived the interest in the joint meeting of all the engineers in Boston, of which training of crippled soldiers may consistently be made a feature; and I am to assist in getting the speakers for their joint meeting some time next month.

John B. Andrews.—You are no doubt aware that Senator Hoke Smith has introduced in Congress a bill (Senate 4284), "to provide for vocational rehabilitation and return to civil employment of disabled persons discharged from the military or naval forces of the United States." We believe this is a very pressing problem, and all patriotic organizations ought to do all in their power to secure the early enactment of this legislation. I also believe that you should at the same time, urge the inclusion of an amendment providing for the promotion of vocational rehabilitation of persons disabled while engaged in industrial pursuits necessary to the prosecution of the war. We are urging men to take jobs in munition factories out of patriotism, where they are subject to industrial hazards. These men should receive the same consideration if disabled as our soldiers, in order that they may be fitted to become self-supporting. It is estimated that there are no less than 100,000 industrial cripples whose productivity could be restored by vocational re-education.

Lew R. Palmer (second communication).—In the Bureau of Employment of the Pennsylvania Department of Labor and Industry, at Harrisburg, extensive card files, recently installed, indicate where 42,111 soldiers, sailors and marines, crippled or permanently disabled through war service may find, in Pennsylvania, suitable employment despite their various disabilities.

More than one-half of the 42,111 employment openings, in virtually all sections of the Commonwealth, are in skilled tasks that may be performed by men having lost one or both legs, an arm, or handicapped by other disability. Places of employment range from steel mills to dairies, from silk mills to railroads, from cigar factories to paper mills and from lumber camps to department stores.

The great number of employment opportunities for crippled war veterans are classified in the Bureau of Employment by industry, by locality, by occupation and by disability of workers to be employed. This classification has been made possible by the patriotic responses of Pennsylvania employers to a questionnaire sent State-wide from the Department of Labor and Industry early this year.

Mr. Rice of course needs no introduction to the readers of the *BULLETIN*; Mr. Andrews is Secretary of the American Association for Labor Legislation; and Mr. Palmer, as already announced in a former issue, is Acting Commissioner of the Department of Labor and Industry of the State of Pennsylvania.

Duties of Engineer Troops.—This office is in receipt of the *Journal of Engineering* of the University of Colorado, dated April, 1918, which contains an article on "The Organization and Duties of Engineer Troops in the European War." The author is C. S. Sperry, Assistant Professor of Engineering Mathematics, and he gives a short account of the different branches of the professional engineer which are in demand "over there." The article is full of interest and will be none the less so to the members by the fact that it includes a number of citations from Major I. Rousseau, who, as it will be remembered, explained the intricacies of mining-warfare to the New York Section in December last.

Restricted Imports.—The War Trade Board issued on April 22, 1918, "List of Restricted Imports No. 2," copy of which has reached this office. The more important articles enumerated which are of interest to the mining industry follow: Lime, talc and soap-stone, molybdenum, ferro-manganese and spiegeleisen, lead, magnesite, and Fuller's earth. According to the announcement, import restrictions on these items became effective on May 13, and amount virtually to an embargo, because import by license from Canada and Mexico only is permitted, and then only when originating in these two countries.

As no previous statement has appeared on these pages with reference to this elimination of less essential imports, it may not be out of place to schedule here the minerals and metals included in "List of Restricted Imports No. 1" published on March 23; these are: Asbestos, cryolite, fluorspar, infusorial and diatomaceous earth and Tripoli, nickel, plumbago or graphite, pyrites, and zinc.

OTHER SOCIETIES.

ENGINEERING COUNCIL.

A memorandum of "Engineering Council's Growing Activities" has been received from Alfred D. Flinn, Secretary, with date of April 20, and is apparently a summation of the minutes of the Engineering Council held two days previously. What has been accomplished by the American Engineering Service, and the War Committee of Technical Societies is touched upon; record is made of a resolution "urging authorities of engineering schools of the country, to direct all their resources to the winning of the war," adopted on the recommendation of the Public Affairs Committee; the appointment of a Military Aid Committee to consider the welfare of engineers in Government war service is announced; and other matters are reviewed.

Also, this memorandum contains the following paragraph:

By invitation, President F. P. Fish of the National Industrial Conference Board presented personally to Engineering Council, resolutions adopted by the Board at meetings being held in New York City. These resolutions requested Engineering Council, as the representative of the great engineering societies of the United States, to investigate and publicly express itself as to whether or not the Nation is gaining or losing in industrial efficiency and what causes, if any, are influencing the condition, and in what manner, broadly, it is believed, industrial efficiency can be further stimulated. These resolutions also urged opposition to proposals under consideration in Congress in connection with appropriation bills to prohibit, diminish and condemn the payments to public employees, or employees of private establishments under Government control, of any cash reward, premium or bonus for superior services. Mr. Fish was accompanied by Mr. James A. Emery of the War Labor Board, who presented strong arguments in support of the resolutions. By vote of Engineering Council, the Chairman appointed as a special committee to give this matter immediate attention: Prof. George F. Swain, Chairman, E. W. Rice, Jr., Chas. T. Main, Alexander C. Humphreys and Benjamin B. Thayer, all of whom are men well informed upon large industrial affairs.

According to a later announcement (April 24), this special committee, because of "the rapidity with which the Army and Navy Appropriation bills are being considered by Congress and the fact that

these bills contain proposals opposed to well tried industrial methods for improving efficiency," made haste to draft a resolution which was adopted on April 22 by the Engineering Council. This resolution follows:

Whereas, the winning of the War imperatively demands highest efficiency and maximum production in every branch of industry, and

Whereas, we are informed that Congress has under consideration in the Naval and Army appropriation bills, proposals to prohibit, diminish and condemn the payment to public employees or to employees of private establishments under Government control any cash reward, premium or bonus for superior service, and

Whereas, these methods if applied with due regard to wages, surroundings, health and safety of the employees, will increase efficiency and production, help win the War, and preserve our institutions, be it, therefore,

Resolved, that in the opinion of ENGINEERING COUNCIL, representing American Society of Civil Engineers, American Institute of Mining Engineers, American Society of Mechanical Engineers, and American Institute of Electrical Engineers, together having 33,000 members, it is vital to the winning of the War that no legislation nor other measure should be adopted which may interfere with highest efficiency and maximum production, but that on the contrary, every proper means should be taken to increase efficiency and production.

Copies of the resolution were sent to the Senate Committee on Naval Affairs, the manager of the Emergency Fleet Corporation, the Senate Committee on Military Affairs, and elsewhere.

To make it entirely clear to what clause of the appropriation bills particular objection is made, it is included in the announcement of the Engineering Council, and is as follows:

That no part of the appropriations made in this Act shall be available for the salary or pay of any officer, manager, superintendent, foreman, or other person having charge of the work of any employee of the United States Government while making or causing to be made with a stop-watch or other time-measuring device a time study of any job of any employee between the starting and completion thereof, of, or the movements of any such employee while engaged upon such work; nor shall any part of the appropriations made in this Act be available to pay any premiums or bonus or cash reward to any employee in addition to his regular wages, except for suggestions resulting in improvements or economy in the operation of any Government plant.

The subject matter to which the above printed resolution applies was submitted on May 17 to the Council for consideration, and the Secretary was instructed to bring it to the particular attention of the membership through the medium of the BULLETIN. In this way, the matter would be made clear and an opportunity would be given to the members to express their views to their Congressmen with regard to the prohibition of the payment to employees of "any

premiums or bonus or cash reward" appearing in the pending Army and Navy appropriation bills. Furthermore, the matter seems of sufficient importance to suggest that members should urge their friends also to communicate with Senators and with members of the House.

MEETING OF THE SOCIETY.

April 18, 1918.

The special meeting of the Society, called by the President to consider certain proposed amendments to the by-laws and "for the purpose of discussing the proposed bill on the appointment of an Administration of Minerals," was held on April 18, 1918, at the Columbia University Club, New York. The customary informal dinner was served to the members immediately before the business of the evening was opened. Mr. Ingalls presided.

The following members attended: H. F. Bain, R. M. Catlin, J. P. Channing, C. R. Corning, J. V. N. Dorr, W. Douglas, A. E. Drucker, L. C. Graton, H. W. Hardinge, L. D. Huntoon, W. R. Ingalls, H. H. Knox, B. B. Lawrence, A. R. Ledoux, R. Linton, A. C. Ludlum, C. W. Merrill, P. N. Moore, H. G. Moulton, H. S. Munroe, R. Peele, J. H. Polhemus, R. M. Raymond, A. de Ropp, E. G. Spilsbury, S. C. Thomson, G. D. VanArsdale, J. A. VanMater, A. L. Walker, H. H. Webb, C. M. Weld, W. Y. Westervelt, R. B. Williams and G. J. Young. Guests who were present follow: J. F. Callbreath, C. H. Crane, A. Douglas, C. F. Kelly, H. S. Mudd, F. Rutherford, E. B. Sturgis, W. G. Swart, A. M. Tweedy and C. S. Witherell.

The President.—The meeting will please come to order. This meeting is called as a general meeting of the Society. A quorum is present. The first business before the meeting is to approve the minutes of the last business meeting, which was held on January 8. Those minutes have been published in BULLETIN No. 116. No objections having been received, if no member present tonight has any objections to offer, the minutes will be declared approved. The Chair hearing no objections declares the minutes of the meeting of January 8, as published in BULLETIN No. 116, to be approved.

This meeting tonight is called for two purposes; first, to take action on amendments to the by-laws, which were printed in BULLETIN No. 115 and thereby laid before all members. The amendments introduced at the meeting of January 8 were approved at that meeting. It is necessary to have further approval of them at a subse-

quent meeting more than thirty days thereafter, which would be the meeting this evening, but since the call was made for this meeting the Council has desired to withdraw the amendments to the by-laws that are before the Society, and would like to have the consent of the meeting to such a withdrawal. The purpose of the Council in requesting this consent is that it considers that some further amendments in addition to those that are already before you are necessary, and, inasmuch as the making of amendments to our by-laws is a lengthy procedure, the Council would like to make one job of it.

The Secretary.—Mr. Chairman, I so move. **Motion seconded.**

The President.—It is moved and seconded that the meeting consents to the withdrawal of the by-laws pending before the Society as requested by the Council. Is there any discussion of this question? If there is no discussion are you ready for the question. **Motion carried.**

The President.—The next business before the meeting this evening is the discussion of a proposed bill for the appointment of an Administrator of Minerals, a bill that has already been introduced into Congress since the call for this meeting was issued. This meeting is open to a full and free discussion of this question. A copy of the bill has been laid before every member here present and there are members with us tonight who are thoroughly acquainted with the history of the bill and the purposes that it is aimed to accomplish, and can fully inform us respecting them. I desire to say, however, that the Society as a Society can take no action on this bill this evening in the way of expressing its opinion either in approval or in condemnation without making the motion the subject of a referendum to the membership, which will require at least thirty days. Any other procedure would run against the by-laws of the Society and would therefore be impossible. However, we have a large attendance at this meeting and no doubt many who are here will desire to have a formal expression of opinion. That expression can be had by converting this meeting later on into a meeting of the New York Section, a meeting of which may according to the by-laws be called like a meeting of any other Section by the President, and for reasons of weight the customary notice may be dispensed with. The President informs you that he will call such a meeting and will declare that there are reasons of weight that justify the waiving of the usual notice of a meeting. Therefore, let the meeting of the Society discuss freely and fully the bill that is before us and its principles, but let any resolution be deferred until this becomes a meeting of the New York Section when such a resolution may be legally introduced and acted upon.

The meeting is now open for discussion and I will first call on Mr. Westervelt.

Mr. Westervelt.—Mr. President, fellow-members and guests: As your representative on the War Minerals Committee, I come before you this evening to solicit your constructive criticism of the Minerals Administration Bill which is before you, your personal help and influence in securing the passage of the Bill wherever you can give it, and such action in favor of the Bill as it is fitting that the Society should give. As stated in the introduction to the Bill, its immediate object is to secure a supply of such minerals as have been heretofore largely or entirely imported, and which now can either be produced in this country entirely or in part, or which (as in the case of tin) cannot be produced in this country but must be conserved to the maximum and for which special arrangements must be made to continue the importation of the irreducible minimum. Our Committee sought for a number of months to attain these objects by use of powers now extant in Washington but were wholly unsuccessful.

For the benefit of those who are not quite familiar with our organization, I will say that it is not official. It is not a regularly constituted Government board. It is simply a volunteer committee consisting of delegates from our Society, the American Institute of Mining Engineers, the American Association of State Geologists, the Council of National Defense, the Bureau of Mines and the United States Geological Survey. One of our principal functions has been to co-ordinate as far as possible the official bureaus with the outside profession and to make recommendations. The necessity for the development of domestic pyrite, manganese and chromite, early became apparent. Having failed to accomplish anything along this line, after the expenditure of a good deal of time and effort, we began to consider the advisability of seeking legislation, and we finally came to the conclusion that the only thing to do was to get such legislation as would secure a Minerals Administrator with ample powers to study specific needs and to apply the remedies found necessary. Our first idea was to secure a Minerals Administrator for only pyrite, sulphur, manganese and possibly chromite, but we found it hard to decide just where to draw the line. Governmental interference in one form or another kept appearing on all sides and we finally decided it would be wisest to make no distinction at all among minerals but simply to secure a Minerals Administrator for all minerals. The mineral industry at large, however, has thus far met the idea of a general Minerals Administrator with apathy and, in some cases, with direct opposition, and it early became apparent that it was not politically practical to attempt an all-inclusive Minerals

Administration at this time. The scope of the Bill was accordingly limited so as to exclude gold, silver, iron, lead, zinc, copper and aluminum. It has been suggested that the Bill as now drawn might be made to cover some of these principal minerals. I doubt this but, if the legal people think there is any question, the Bill must be made entirely clear. The point I wish to make at the moment is this; this Bill is not meant to include any of the principal minerals and if the Bill as now drawn can be construed to include any of them the Bill must be modified so as to avoid any ambiguity. I want to make that point quite clear for reasons which will appear a little later.

In drafting this Bill, we used the food sections of the Lever Bill as our model. I think we will all agree that the most conspicuous success in war administration in Washington has been the work under our great fellow-member, Mr. Hoover. He and his staff were largely responsible for the drawing of this Bill. Further, it had been demonstrated by actual passage of the Lever Bill that a bill of this form could be gotten through Congress. I want to say quite frankly that there is much in this Bill that a mining engineer would never think of inserting. We would state that such and such powers and resources are to be given an administrator over specified minerals, by whom the administrator was to be appointed, and let it go at that—but that is not the way our legislative bodies work. That is the reason the Bill covers twenty pages instead of perhaps two.

Now, I am not going to weary you by discussing the details of this Bill. I hope we will get plenty of discussion from the members. We want constructive criticism and I want to listen. We have done the best we could to date, and we want you gentlemen to help us make the Bill as perfect as is practicable. The Bill has already been modified in going into and coming out of the House Mines and Mining Committee, and it will undoubtedly receive considerable further modification on the floor of the House. It will then go to the Senate and receive modification there, first in committee and then on the floor, so that there is plenty of time for further amendment. The main thing is to get the essentials of the Bill passed and a Minerals Administrator appointed at the earliest possible date. Who this Minerals Administrator is to be is of course a most serious question and one that at once comes into the minds of all of us. A clever telegram came in a couple of months ago from a prominent member of the A. I. M. E. reading, "I thoroughly approve of the bill, but who is to be the pin-head who is to run it?" (Laughter.) A mighty pertinent question.

Well, we left this matter as open as we could, for our political advisers told us that we had better not try to handle it at the start. Then, good friends came down to the Hearings of the House Mines

and Mining Committee and made it quite plain that the mining industry rallies best around the Secretary of the Interior, and that it has great confidence in him. Those of us who have been working in Washington in close touch with the Department of the Interior most heartily concur in this feeling, and thus, eventually the Bill was made to read as it now stands, "that the President through the Secretary of the Interior" shall do thus and so. Now, with such a Secretary of the Interior as the present incumbent, advised by such a Director of the Bureau of Mines as we now have, I submit that we have little to fear from the appointment of an incompetent administrator. I cannot but digress here to speak of my admiration for the Director of the Bureau of Mines. If I ever saw the right man in the right place it is in his case. The expansion he has effected in his Bureau in the past year to meet war needs is most remarkable and, during the time in which he has been doing this, he has kept himself accessible and in so far as his position would admit, has kept himself in touch with and fostered our industry. With a Secretary and such a Director under him, I submit that if this Bill is passed and our industry makes it sufficiently plain who should be administrator, we will get him.

Lately, the Washington administration itself is certainly showing a much stronger tendency to get away from what might be termed an academic attitude in making appointments, and to put in high positions men of large reputation in their own lines, witness: Jackling, Mudd, Yeatman and Schwab, all but one I think, members of our Society. But, regardless of Society membership, no one questions the unusual capacity of these men to handle large affairs in engineering lines. Our War Minerals Committee has felt it highly undesirable for it to have any candidate at all in mind, or to advocate any one. That we felt was distinctly up to the industry. There isn't any question as to the type of man needed. He should be one of the biggest men in the mineral industry, a man who has been identified with it all his life, a man who has the confidence of the industry and who has a broad outlook. I can't help saying personally that our fellow member, Pope Yeatman, to whom we have recently given the greatest honor in our power, and who has been in Washington on work for the War Industries Board leading directly to such an administration, is the man I should like to see appointed. But, as I have already said that is a question on which the industry should make up its own mind. So much for the main, direct features of the Bill.

But our Committee is greatly impressed by the importance of the indirect effects this Bill would have. I can't help feeling that if the mineral industry is so fortunate as to get this Bill passed, the indirect benefits will be far greater than the direct benefits, and good-

ness knows there is need enough to safeguard the supplies of sulphur, pyrite, manganese and chromite, etc. We have got to have them and the shipping available for their transport grows less and less. The indirect need for this Bill comes primarily from the steady trend towards the socialized state gathering all power to itself, which has been gaining headway ever since our war commenced. More and more we see in Washington this, that, and the other influence bearing down on our industry. If these influences are to act constructively rather than destructively we must have a man located in Washington; one of our own men, a man we can all trust and know, high in the councils of the Government so that he can know plans affecting our industry in advance and see that these plans and the industry are properly adjusted.

Now, how is this to be accomplished when our Bill carefully excludes all the principal mineral industries? Undoubtedly the Mineral Administrator's power to help will be limited. He, for example, will have no power to interfere with the copper industry, but his very title and his high position in Washington administration councils and affiliations in direct touch with both the mineral industry and the Washington administration should make him of inestimable value to our general industry. Take for illustration, the ship building labor trouble. Here was a case in which the Washington administration came out strongly and made a point of getting the work done. Labor made definitely to realize that it must either "co-operate or obstruct," patriotically chose the former. Regardless of the wisdom of the President himself appearing in such a situation, my point is that the situation was plainly put before labor and the crisis met. May I suggest that the prime reason this occurred was because the head of this shipbuilding industry was a high official in Washington, who thoroughly understood the needs of the situation and had all along been keeping the Washington administration fully advised of the necessities of the case. The mineral industry should be in like favorable position.

Consider the socialization of the state, or the concentration of power in the hand of government, which our Allies have already experienced, and then let us ask ourselves what we may expect? Take, for instance, the transportation situation. Transportation, as we all know, is now legally the property of the Government. In another year it will be not only legally the property of the Government but we will all feel it physically. Railway officials are steadily becoming Government men, rather than the representatives of the stockholders, or they are getting out of office. Embargoes are an ever increasing problem. The time is coming when in place of the present 500,000 we will have a couple of million or more men in Europe. With the supplies and munitions for these men, and for

millions of others in training camps in the country, to be gathered together, car shortages are going to be more serious than they are now. For example, fancy an Army official rushing over to the Transportation Department and saying, "We have got to have ten thousand more cars on our work at once since the new cars are not coming in fast enough." What transportation will these cars be taken from? Well, it can't be left for a transportation clerk to look at a casually compiled list and cut off the last ten numbers to get those cars. The relative importance of various commodities must be known in advance, and adjusted as needs arise, and a Minerals Administrator must see to it that necessary mineral industry transportation is maintained. We must have a representative down there at all times, in constant touch with every move, so that these various restrictions as they come up will be properly taken care of, will be foreseen and the essential mineral industries will not be cut off haphazard.

Take the subject of labor. We had a million men taken out last fall, another million men come out this spring, another million, I suppose, in the summer and so on indefinitely. I claim no special knowledge of military affairs, but is it not likely that in a couple of years we will have 10,000,000 men under arms in this country and abroad? These men have got to come out of our industries and they will be the huskiest of our young fellows. Then we have millions of men working for contractors on war work. Some of these contractors are working on a basis of cost plus ten per cent. Others, who have taken war contracts which are being delayed, have simply been told to get results, finish the work, and discuss the bills afterwards. What chance have our normal mineral industries got to maintain labor against such competition? Then again, take the housing problem. The Government is already starting in on that and has voted some fifty million dollars to meet the problem. We all approve of that, but the question is where are the houses going to be built? They will first be built around the shipyards. What will this do to former centers of gravity of labor? A Minerals Administrator must see to it that essential mineral industries are helped rather than hindered by this housing movement.

Now, all of these situations develop quickly and suddenly, as I have just suggested in discussing transportation embargoes. This is one of the principal reasons why we have to have a man in Washington as Minerals Administrator with a corps of able men around him who are in constant touch with our industry. A few weeks ago I attended a luncheon given by Mr. Manning with Secretary Lane as guest of honor. Mr. Gay of the Shipping Board was present and he was telling us something of the troubles of the Shipping Board. He stated that, "We had a very nice shipping plan ar-

ranged here a few weeks ago in which we were going to gradually cut off various lines of steamers with the least possible jar and the greatest possible provisions to replace their service in advance. It was going to take between six weeks and two months to effect the change. We just got it nicely arranged when the other day the Army came over and said, 'We have got to have those ships immediately, it doesn't make any difference what harm is done.' That is the way a new military necessity strikes. If we aren't ready in advance with our plans for the mineral industry we are likely to be hit in just exactly that sort of way. It should be emphasized that Mr. Gay made this statement about four weeks ago, just before the public news of the great German drive had come out. No doubt, General Pershing had telegraphed from the other side that the drive was starting and would have to be met immediately.

Take the subject of imports. There is no question that wherever possible we must replace foreign imports by domestic articles, we have simply got to. The statement was made the other day that it would be next spring, a year from now, before the construction of ships—the rate of launching—would even equal—just think of that—even equal the submarine sinkings. Twenty per cent, per annum of the world's available shipping is being sunk! Just think of what that means; and we have got to let this heartbreaking twenty per cent per annum go ahead for another year (less such launchings as we have in the interim) before our launchings will equal the submarine sinkings! And that doesn't include ordinary marine hazards which are extraordinarily heavy at such times as the present, when we are letting any old ship go to sea that has a chance of reaching the other side. We have got to care for our imports and see that shipping is provided for those needs which the mineral industry cannot produce for itself; for instance nitre—I happen to be connected with the sulphuric acid manufacturing business—we have got to see to it that the nitre supply is maintained. Fortunately, the War Industries Board already has this particular item well in hand, but we have got to see that the mineral industry gets its share, not from a selfish standpoint, but from the standpoint of patriotic supply of necessities for the war. In fact, if we don't keep our mineral industry going is it possible for us to win the war?

I have here some resolutions which have been passed by other societies which I think will interest you as giving an idea as to the attitude of the West and of the industries which are directly affected by this Bill. Day before yesterday I received this letter from M. B. Tomblin, Secretary of the Colorado Metal Mining Association and of the Colorado Chapter of the American Mining Congress. Mr. Tomblin writes:

MINING AND METALLURGICAL SOCIETY OF AMERICA

I enclose you a copy of the resolution adopted by representative producers of tungsten, palladium, pyrites and manganese. As stated in the resolution we shall be glad to cooperate in any way possible to increase production of these minerals.

The resolution reads:

RESOLVED THAT the Colorado Chapter of The American Mining Congress and the Colorado Metal Mining Association are in full accord with the purposes of the Administration as outlined in the provisions of the Bill proposed by the War Minerals Committee to create an administration for the mineral industry and believe that important and much desired results may be accomplished thereunder; but they trust that the powers conferred by Section 12 will be so employed as will least disturb established enterprises and existing conditions, particularly those affecting labor.

As attested by the Federal Bureau of Mines, Colorado can greatly increase its output of Manganese and Pyrites as well as the rare minerals, Tungsten, Vanadium and Molybdenum. Adequate and stabilized prices as provided for in this Bill will enable producers of this state to contribute a large proportion of the amount necessary to take the place of imported ores and minerals.

The mining men of Colorado herein express their desire to cooperate to the fullest degree with the Government in its efforts to increase the production of minerals necessary for the successful prosecution of the war and tender the facilities of their organization unreservedly to that end.

Adopted at a representative meeting of Tungsten, Molybdenum, Pyrites, Vanadium and Manganese producers of Colorado at a meeting held in Denver, April 2, 1918.

Then the San Francisco Section of our own Society held a meeting night before last. I sent a long telegram embodying the above resolution, asking if California couldn't do as well as Colorado and I got this reply. I believe a further reply has since been received by our Secretary, but this telegram reads:

Message received. Meeting held last night heartily endorsed bill. Particulars tomorrow.

Now, gentlemen, if I might take a few minutes longer of your time to bring out some familiar points which have a bearing on this Bill. A friend of mine challenged me the other day with the remark that "Your blamed War Minerals Committee has stirred this whole thing all up and they might better have let the situation alone." I can prove an alibi to that accusation. I can do better. I can name the guilty man. He is Kaiser Wilhelm the Damned. He stirred up this whole situation in 1914, and he has been at it ever since. He had been getting ready, he and his progenitors, ever since the outrages on France in the '70s. We all know he has the most highly centralized concentration of resources, material and mental and spiritual, that the world has ever seen. It has been steadily dawning on the Allies during the past four years that nothing but similar

concentration of power in opposition can prevent the Kaiser from winning this war and enslaving us all. Centralization of power has already progressed amongst our Allies to an extent unthinkable before the war, and a year ago we made our choice between having Kaiser Bill come over and permanently centralize our resources or of centralizing our own powers, making our own dictatorship in this country temporarily and of getting rid of it at the end of the war.

But have the Allies been working fast enough? I don't know whether it is fitting to speak of it here but, gentlemen, what is happening right now? Are the British lines breaking? Are the British going to be swept into the sea? Are we working fast enough? We of this Society don't have to answer that question. The country at large will answer it. You find the answer all over Washington. Talk to a legislator, talk to a Government official, the reply is the same. The country has made up its mind to place absolute power in the hands of the Government, and the Government is going on interfering with one industry after another—I won't say interfering—I will say controlling one industry after another. Intelligently or unintelligently, in touch or out of touch with each particular industry affected, as circumstances may develop, the nation as a whole has made up its mind to organize its entire resources into one huge Kaiser-licking machine. I think we all realize that, but do we stop to think what all this means to our industry? This Bill offers us a chance, gentlemen, possibly the only chance, to establish continuous touch between our industry and the overwhelming Government control that the war is temporarily forcing on the country. It offers us the chance to get into power a big man of our industry to whom we can go, and who will be in constant touch with us and at the same time with the highest councils of the Government. Without such representation, with our transportation already in control of the Government and with labor and supplies coming more and more under such control, I dread to think of what may happen to us and through us to the Cause, merely through lack of forethought and of knowledge of our own peculiar requirements. Through this Bill we have the chance to stand up and to more or less direct, so far as we are concerned, the great forces the war has set to work. The question our industry has to face is whether it is going to take the forces standing up or lying down. Ever increasing Government control is upon us, whether we will or not. Gentlemen, won't you help our industry to take it standing up? (Applause.)

The President.—Does anybody desire to ask Mr. Westervelt any questions while his remarks are fresh in mind? If nobody cares to ask Mr. Westervelt any questions at once, I will request the Secretary to report a communication that he has received from the San

Francisco Section, and to read other communications that he has received from members in response to the general request of the Council that it issued about a month ago.

The Secretary.—The communications received by the Secretary, as you will note, are quite voluminous, and they have been digested and summarized in the office.

R. C. Gemmell, of Salt Lake City, writes about as follows:

He suggests that the best method would be to use existing Governmental agencies and to fix prices in order to stimulate the production of metals of which there is a scarcity. It might be advisable, he thinks, that such agencies should encourage increased production by subsidy, which would also provide for the development of mines and plant construction, proper consideration being given to costs. He also suggests "that the Government, with propriety, extend financial aid to private enterprises from which public advantage and benefit is to be derived." He is strongly opposed to legislation by which the Government would directly undertake the production of metals.

George E. Collins, of Denver, writes, under date of March 31, with reference to calling a meeting of local engineers, that a joint meeting of the Colorado Chapter of the American Mining Congress, and of the Colorado Metal Mining Association, was to take place within a few days, and that any action taken by this meeting would be as nearly representative of the opinion of Colorado engineers as could be obtained. A summary of his letter where it deals specifically with the minerals-control bill follows:

He believes that there is no necessity for Governmental operation as per section 12, and that adequate production of necessary minerals can be obtained by fixing minimum prices to extend for three years, and that this would not interfere with general mining conditions or require the creation of additional Government bureaus.

R. T. Cornell's communication is summarized as follows:

He believes that a corporation, controlled and financed by the Government, should be formed and that it should have powers similar to those proposed in this bill. He assumes, however, that the bill which has been drafted is in accord with Government requirements.

Waldemar Lindgren of Boston writes as follows:

"* * * that the bill might just as well go one step further and give the President control of all metals, silver and copper being already controlled. I am in favor of giving the administration all they ask for in this case and would even enlarge the powers as noted above."

A. H. Rogers of Boston, wrote to Professor Lindgren under date of April 10; his letter, condensed, follows:

That although not entirely desirable from his point of view, the bill should be passed as it is desired by the Administration, but he believes that it should cover all metals.

Authority to fix prices is the only additional power granted to the

President, and it is this which the Bureau of Mines particularly desired, believing that it will stimulate the production of such metals as pyrites, manganese, chrome, etc. He thinks this reasoning sound, although opposed to the application of such a principle for ordinary times.

"We have entrusted the Administration as General Manager with the task of winning the war for us. Some of us might, perhaps, have chosen a different personnel for our management but under our form of government, we have no choice. If they say certain facilities are needed by them, it ill becomes us to deny them. Certainly if we do so, we cannot hold the Administration to full responsibility. Therefore, I am in favor of recommending the passage of the bill in substantially the form presented."

A letter from J. L. Bruce, manager of the Butte & Superior is summarized as follows:

He believes that this bill does not make provision for protecting the Government in case of over stimulation and consequent over production. In other words, Section 14 should be so modified, he thinks, that guaranteed prices shall cover only those quantities needed to meet actual Governmental requirements.

He believes that the Government might provide concentrator equipment in rare metal regions to stimulate development of mines by prospectors and lessees.

The rest of them could not be summarized. Here is a telegram just received from Seeley Mudd:

You asked expressions regarding war mineral bill. I earnestly support it.

This telegram comes from Frank H. Probert, Chairman of the San Francisco Section:

At a joint meeting of local sections Mining and Metallurgical Society and American Institute of Mining Engineers Tuesday night it was resolved that the local section of the two societies heartily approve of the purpose and intention of the bill designed to promote and stimulate the production of minerals necessary for the successful prosecution of the war. After discussion of the subject matter of the bill it was suggested that the prices be fixed for the period of the war and two years thereafter and that they apply at the nearest shipping point to place of production of minerals. Full report of meeting will be mailed to you and copy sent Stoughton.

I have underlined a dozen lines in a letter from Secretary Lane in reference to this bill, which I think it will be necessary to read:

* * * I feel that its purpose is constructive, and that such control on the part of the Government will be necessary in order to insure adequate supplies of the minerals included. The primary purpose of the bill is to stimulate production by stabilizing market conditions and prices for a sufficient period to insure a fair return on the capital invested. Where price control is obviously for the purpose of increasing production, the producer need have no fear of any injurious effect on his operations. A serious shortage is imminent in many of these minerals and must be met, either by careful restriction of consumption or by increased domestic production.

Under date of March 28, J. E. Spurr, as a representative of the Committee on Mineral Imports and Exports, sends the letter which follows:

In reply to your circular of February 28, with the enclosed copy of the draft of a Bill to create an administration for the mineral industry, I desire to attempt a brief survey of the situation.

As you know, the War Minerals Committee was among the first to perceive the necessity of some control of the production, importation and distribution of ores and minerals in the United States during the war, and urged this matter upon the attention of the Government for a long time without commensurate result. Finding that the existing Government machinery was not adequate to afford executive control of these matters, the Committee came to the conclusion that the war administration of ores and minerals and metals would be the best solution, this administration following the lines of the Food and the Fuel Administrations. Accordingly, they drafted a Bill, following the lines of the Food Administration, and giving the President full executive control of the production and distribution of ores, it being the assumption that this control would be delegated to a Metals Administrator. When the mining public was sounded as to their attitude on the question of a Metals Administrator, it was found that the industry was very much opposed, and this feeling was accentuated by popular criticism of the Fuel Administration which arose at about this time. It was pointed out that this Bill would put under the control of the Metals Administrator, the gold, silver, copper, lead, zinc, iron, and other industries, which were getting along very well as they were, and that legislation in regard to them could do very little good, and might do a vast amount of harm if the Mineral Administrator or Dictator should not be an absolutely ideal selection. For this reason the mining committees, both in the Senate and the House, advised that they did not consider it advisable to introduce the Bill.

The matter, therefore, remained in abeyance until the Shipping Board took action to secure ships for military purposes by restricting imports of commodities, and for this purpose our Committee on Mineral Imports and Exports was organized in such a way as to represent the Shipping Board, the War Trade Board, and the War Industries Board. The members of the Committee are impressed with the idea that as the import of these essential commodities, such as manganese, chromite, and graphite, is restricted, immediate steps must be taken by the Government for stimulating and increasing domestic productions, otherwise there would be a gap created, which could not be filled, with consequent confusion in vital industries like the steel industry, which are absolutely necessary for carrying on the war, and a consequent failure of the shipping program, as put into effect by the recommendations of our Committee. We therefore strongly favor and do now most emphatically recognize the necessity of a strong Government co-operation for the purpose of stimulating the domestic production of those ores, of which we are threatened with a shortage, mainly on account of artificially limited importations from overseas.

This contingency led the War Minerals Committee to the plan of reviving the question of a Mineral Administrator who, however, should only have under his charge those ores and minerals of which we were thus threatened with a domestic shortage, and in accordance therewith the present Bill was drafted.

We may first reiterate that we were at first very much concerned over the fact that there appeared to be no Government organization equipped and ready to take up the work of watching over and stimulating domestic production to take the place of our cuts in imports, which have been decided upon with the understanding that the increase of domestic production which appears feasible shall be brought about by Government assistance. It was evident that our Committee, primarily organized as a Committee of the Shipping Board, could not accept responsibility for any other field than that necessitated by the Shipping program, but it was equally clear that our actions must be accompanied by immediate complementary activities covering domestic production and distribution. The matter was solved by the War Industries Board agreeing to accept responsibility for these domestic protecting measures. Final recommendations for restriction of imports, as they are now formulated, carry with them the approval of the War Industries Board, and are put into effect through the War Trade Board, which will issue licenses for import and export accordingly. These recommendations usually briefly outline the remedial domestic measures to be taken, but these suggestions are merely suggestive and gratuitous, and it is understood that this remains in the hands of the War Industries Board. This was a very satisfactory arrangement for us, since the shipping program was imperative and ships had to be taken at once for military purposes, with or without careful investigation, and therefore the shipping program could not wait for further legislation. The function of our Committee was to see that this commandeering of ships was accomplished as equitably and with the least disturbance of vital interests as possible.

At the present moment, therefore, we are in a position to speak *ex parte* in the matter, as the program is already largely arranged for, and the work and responsibility distributed among existing and actually functioning Government bodies.

Our first thought is that, in the interests of efficiency, an existing organization might do the work required, to obviate the loss of time which would be necessary to the building of a new organization, after the initial delay of proper discussion and legislative action. It is believed that the framers of the Bill in question also have this idea in mind and might subscribe to this, and in so far their present plan will differ from the original plan, which probably contemplated a new administration. If so, the question resolved itself into strengthening the hands and enlarging the powers and resources of one of two existing Government bodies; the War Industries Board or the Department of the Interior, with its United States Geological Survey and its Bureau of Mines. Should the Bill pass, the matter is left in the hands of the President as to whom he will delegate the authority conveyed to him, and he will use his own judgment in this; but if precedent in other decisions shall be followed, it is probable that he will not delegate his special war functions to the ordinary peace time Government organizations, and this will indicate the War Industries Board as the probable body which will be strengthened in order to carry out the work indicated more promptly and efficiently. Nevertheless the resources and powers of this Board are not sufficient. In any case a considerable extension and reorganization will be necessary for satisfactory operation of the functions contemplated in the Bill under consideration, and close co-operation with the Bureau of Mines, the U. S. Geological Survey, and other Governmental agencies.

As regards the scope of the Bill, the copy forwarded by you under date of February 22, covers "practically all ores and minerals except aluminum, gold, silver, steel and iron, copper, lead, zinc, coal and petroleum." Specifically it includes "all ores, minerals, intermediate metallurgical products, metals, alloys and chemical compounds of antimony, arsenic, bismuth, bromine, chromium, corundum, emery, graphite, iridium, magnesite, manganese, mercury, mica, molybdenum, osmium, platinum, potash, pyrites, sulphur, tin, tungsten, uranium, vanadium and of other rare or unusual elements the supply of which may, in the judgment of the President, be inadequate for war and industrial needs." In the Bill as printed by the Committee of the House of Representatives, and dated March, 1918, however, the list of minerals is further limited as follows: "antimony, arsenic, chromium, graphite, magnesite, manganese, mercury, molybdenum, platinum, pyrite, tungsten, tin and sulphur and alloys and chemicals derived from them."

Our comment on this list is that it is entirely inadequate and that any Mineral Administrator appointed over these commodities and not over equally essential commodities, would not at all remedy the existing necessity. The Bill is intended, as stated in its text, to provide for "encouraging the production, conserving the supply, and controlling the distribution of those ores, metals and minerals which have formerly been largely imported or of which there is or may be an inadequate supply." In other words, it covers particularly those mineral commodities, the importation of which has been or will be restricted by our Committee. Now these commodities include part of the above list, but also include clays, asphalt, bauxite, salt, gypsum, mica, asbestos, chalk, Fuller's earth, grinding pebbles and other mineral commodities which constitute scarcely less an important problem, from the standpoint of tonnage involved or of relation to essential industries, than the list given, and it is quite positive that the same Government assistance must be given to the domestic stimulation and protection of these commodities as to those listed in the Bill. Furthermore, there are the minerals of maximum importance, such as iron and copper, which are imported to a considerable degree, and although it may be inadvisable to put a Metals Administrator over them, it is equally necessary for these to be directed, distributed and protected, as in the case of the other commodities, and for the same reasons.

Our first comment, therefore, is that instead of the limited list of mineral commodities mentioned in the Bill, any further control and organization by the Government should embody the possibility of including all the mineral commodities.

The next question is the amount of control which exists and the further functions which it is necessary for the Government to create and grant. The essential features of the Bill are that the proposed further powers consist in punishing hoarding, or the restriction of production, or the exaction of excessive prices; that the manufacturer, storage, mining or distribution of any necessities may be licensed in order to put them fully under control; that necessities may be commandeered and purchased, that contracts for purchase by the Government may be entered into and commodities so purchased may be sold; that the Government may take over and operate any undeveloped or idle mineral land, deposit or deposits, mine, smelter or plant, to be restored to the owner at a subsequent time; that control be given of the market prices of necessities, including the right to investigate private business and accounts; that prices may be fixed by the Government, and producers

guaranteed fixed prices for not more than two years; and that special import duties may be levied in order to protect these producers. Finally the sum of \$1,000,000 is appropriated for the period ending June 30, 1919, for the carrying out of this proposed administration, and the sum of \$50,000,000 is appropriated as a fund for carrying out the provisions of the Bill.

It will be seen that the required authority, for regulating domestic production is quite fully covered in this bill, and in the hands of the ideal executor it will doubtless work out most satisfactorily. As there is always some question, however, as to the ideal personality, until this shall have been proved, the question arises whether it is not possible to increase existing authority and functions, up to the requisite limit, without going the entire length of the program. Apparently some closer study should be made of existing Government functions to see whether some of these powers thus to be given to a new official do not already exist, scattered through different branches of the Government, and could not be exerted if it were manifestly advisable. The purchasing department of the War and Navy, and the purchasing organization of the War Industries Board apparently have it within their power, if they are so advised that it is essential, to contract at a fixed price for a Government purchase of commodities over as long a period as will be desired. Purchases of platinum have already been made by the Government, and it would seem perfectly feasible, for example, for the Government to contract for a certain amount of chromite covering a period of two years. Through its close contact with the industries, the War Industries Board could perhaps arrange for even larger financial operations by arranging with the different industries to immediately purchase commodities which the Government is contracting for, at a fixed price. Financial assistance in opening up and operating mines is apparently contemplated in the proposed Bill for a War Finance Corporation, which is being pushed by Secretary McAdoo and which apparently has a good chance of going into effect soon. In short, it is a question as to whether the existing functions of the Government working in harmony, cannot accomplish most of the objects aimed at in this Bill. The Shipping Board, the War Trade Board, the Food Administration and the Fuel Administration all have powers which they can use to assist the organization directing the metal industry, and they will doubtless heartily co-operate to relieve any necessity. We repeat that a careful summary should be made of these existing Government functions, and it appears to us that if there is any other necessary function which the organization controlling the encouragement of war metals should have, it should be arranged for at once.

We desire to point out, however, that all these functions enumerated in the Bill would not of themselves furnish anything like a satisfactory solution to our problem of stimulating domestic production. We of the Committee on Mineral Imports and Exports, by reason of our intensive study of different commodities, and numerous representative trade conferences, which we have conducted in co-operation with the War Industries Board, know that the main problems to be met and overcome are those of labor and railroad transportation, and not those mentioned in the Bill. These problems can only be solved by the method above indicated, namely by co-operation with the Department of Labor and the Railroad Administration.

In short, it appears absolutely necessary to us that this problem of encouraging and assuming the responsibility for domestic production

of necessary ores and minerals, should be delegated to one Government organization, preferably one already existing, and presumably the War Industries Board; that this organization should complete its preparations and its system in order to carry out the responsibilities involved, and should take upon itself the responsibility of securing the co-operation and assistance of the other departments of the Government and the advantage of their peculiar powers as well as their information; that if it appears upon test that any essential powers or functions are lacking, these should be secured as expeditiously as possible, but no unnecessary or arbitrary powers should be given without a careful survey and investigation; and that finally the range of mineral commodities involved should cover the whole field, metallic and nonmetallic.

On April 2, F. F. Sharpless replied to the request for an expression of views—this I will read in full. Later, finding that he would be unable to be present tonight, Mr. Sharpless again wrote on April 15, and this letter I have summarized.

Complying with your request that the members of the M. and M. S. A., express their views respecting the bill that the War Minerals Committee has formulated and is now trying to have passed, I submit the following:

The central idea of the bill appears to be stimulation of production, conservation and proper distribution of certain mineral necessities not previously provided for.

With this purpose we must all be in accord, for we know full well that a greater supply of some minerals is urgently needed for war and industrial purposes, and other needs are liable to be brought forward from day to day as war requirements expand.

We can, of course, do as we have always done in the past; make no official effort, and allow the problem to work itself out in the course of time through the law of supply and demand; knowing that it will work out eventually. But "eventually" is not when these supplies are needed. They are needed now, today, and anything that you can do to cause them to materialize upon the markets more rapidly will help in winning the war.

The law of supply and demand works surely but slowly. Exigencies have created sudden and unusual demands. Expediency must provide the additional supplies.

It is not to the point to say that the old industrial philosophy of the Manchester school of political economists has gone by the board and is out of date, but rather that conditions of the times require that it be given artificial assistance to bring about more or less normal conditions.

The reasons why supplies produced by private resources are slow to equal the sudden increasing demand, are several. The individual producer has no means of determining what the demands are to be in the future, or the prices that he will receive. The consumer can give him only a short time contract, if any contract at all, for neither does the consumer know what his requirements will be or what supplies will be offered six months hence. There is nothing upon which to base future selling prices, hence nothing upon which to base capital expenditures, and there is a great reluctance to make investments.

The bill proposes to mitigate or to do away with this situation. It presupposes that the Government has at its disposal, or can secure, an estimate of requirements and of supplies that will be furnished through existing channels, will know the amount of shortage that will exist over specified periods and the sources from which this shortage can best be filled.

The bill proposes to meet this situation by having the Government enter the market as a buyer on its own account (Sec. 11), or guarantee a minimum price to the producer (Sec. 14), or if necessary and more expedient, to go into the mining and production of any necessary mineral (Sec. 12).

Some objections will undoubtedly be offered to one or all of these proposals, but I can imagine none that will outweigh the good that may be accomplished by the judicious use of the provisions.

Going into the market or guaranteeing a minimum price is not "price fixing" and is not limiting the price that producers may receive. Sec. 14 does contain a clause giving the President power to fix prices, a power that he apparently has already, but as I understand it, this is about the last thing that the Government now desires to do. At any rate, experience in price fixing will have developed so far by the time this bill can be passed, that the authorities in Washington will know how far that power should be used. Except in providing for a possible emergency, it will make little difference whether this price fixing clause is omitted or included.

As to operating on its own account, there will be many who will object to the Government doing this. "Tending toward the socialistic ideas that are incompatible with American development," they will say: "Unnecessary for the Government to undertake what can be better done by private initiative," etc., etc.

Objections that can be raised are more imagined than real. If the metal is not being produced as required, and private capital is slow to respond to the demand or make no response at all, let the Government go it by all means and get the metal it needs regardless of cost. There may be much more red tape than in private enterprise. Some inefficiency may be shown, probably will be, unless the Government is fortunate in finding and placing in charge of the business, another Hoover. But inefficiency and excessive costs, regrettable as they are, may be excused in war times if the required metals are produced.

A committee, an individual, or a department given the authority and backing for stimulating production as asked for in the bill, and working hand in glove with other Government departments, might possibly misuse some of its prerogatives but it would certainly be equipped with the means of accomplishing an immense amount of good and the bill, because of this, should, in my estimation, be supported.

Aside from the sections mentioned there are many others more or less pertinently connected with the main idea, some of which may be unnecessary or may not meet with our approval, but these are matters of detail that may well be left to the War Minerals Committee, and our legislators to work out, knowing that they have our support in the main idea.

Here follow excerpts from the second letter:

I have just been called out of town and I regret extremely that I can not be with you on Thursday evening to hear the discussion upon

the War Minerals Bill. Being strongly and favorably impressed respecting the principles of the bill, I would like to learn what objections are offered.

As to the details, which have been worked out so elaborately by the Committee; whether we approve them or not will make but little difference. The House and the Senate will modify these to suit those august bodies, regardless of our suggestions. The principles they can not modify. These must be adopted or refused passage, as they are adequately supported or condemned.

I hope that some expression will be recorded, favorable or unfavorable, as the opinion of those hearing the discussion if not of the Society.

The President.—Gentlemen, I think that the case has been very excellently and very thoroughly put before you. Mr. Archibald Douglas, won't you give us your views?

Mr. Douglas.—Mr. Chairman, I only read this bill over hurriedly yesterday, and on looking it over, it occurred to me that one or two of the provisions of the bill were such as to bear very heavily on the mining companies affected, and that if one or two of the provisions were carried out as suggested it might bear in very many cases very disastrously. I understand that the mining profession is very generally in favor of the purposes of this bill or of a bill that will give the Government at this time the powers to carry on the war most effectively, and any provisions in this bill which would carry that through in a fair way to the mining industry, or to the miner, should be favored, but in passing any such bill the provisions should be fair both to the miner and to the Government.

Now, one provision of this bill, that met my eye particularly, is the provision under Section 10; the same provision occurs substantially in Section 12. I understand that this provision occurred in the Lever Bill and while it might be an excellent provision in the case of "fish, flesh, fowl or good red herring" I do not think it is a fair provision in the case of a mine. The provision, you will see, is this—the question of compensation: "If the compensation so determined be not satisfactory to the person entitled to receive the same, such person shall be paid seven-five per centum of the amount so determined by the President, and shall be entitled to sue the United States to recover such further sum as, added to said seventy-five per centum, will make up such amount as will be just compensation" I don't see any justice or fairness in the Government saying to a miner, "In my opinion, your property is worth \$40,000," and when the miner replies, "We have had our property appraised and know what is in the property; in our opinion, the property is worth \$50,000," the Government then asks, "Are you satisfied to take \$40,000?" and when to this the miner says, "No," the Government

retorts by stating, "Well, if you aren't satisfied we will therefore give you \$30,000." Is that fair? Is it not coercion? The only right then left to the mining operator is to go into the Court of Claims of the United States, or the District Court, and litigate for two or three years to determine whether he shall get the conceded fair value of his property, \$40,000, or not. That is a fundamentally unfair and very frankly criticisable provision in the bill. It cannot be defended. The same is true with respect to the leasing proposition, which says that if the leasing compensation be unsatisfactory the Government shall pay 75% of the conceded value of the lease. I can't see anything to justify the paying of 75%; I can't see why if the Government concedes that the property is worth one hundred per cent it shouldn't pay one hundred per cent, and, thereafter, if the operator feels he isn't fairly dealt with, by a provision which might well be included in this bill, the operator would be required to put up bond and sue the Government for the difference between the amount conceded by the Government and the amount claimed by the mine owner. It is quite possible that this bill is only a stepping stone to taking over the larger metals, copper and iron and zinc, etc., and it is quite conceivable that if the sums should run into millions, the difference between 25% of the conceded value of the property and what the Government is willing to pay might wreck the property, put it into bankruptcy and prevent companies from paying interest on their bonds. That provision seems to be unwarranted. I believe it is in the Lever Bill but it isn't warranted in any bill. I think it is unconstitutional. I think it is frankly taking property without due compensation. The constitution of the United States says in effect that no property is to be taken by any governmental agency without due compensation. Here, this bill frankly on its face compensates you to three-quarters of the value of the property in case of dissatisfaction with the value the Government fixes.

It seems to me you might clarify Section 1 by adding to the text on top of Page 2, after the words, "the following named mineral substances and ores, minerals, intermediate metallurgical products, metals, alloys, and chemical compounds thereof," the words, "which are chiefly valuable by reason of the following contents," and then go on with antimony, arsenic, ball clay, etc. I think that would make it very clear, so that the Government could not take copper, for instance, on the ground that it contained arsenic.

The question of whether the theory of the bill is justifiable or not, it seems to me, can be worked out more from the business and governmental point of view than from the legal point of view. The recent tendency of our Government is to carry the power of eminent domain very far, and while before the war this bill would not have

been justifiable in any sense, under the grave position that we are now in it may be justifiable. We must win the War!

Economically, it seems to me, the bill is wrong. It seems to me that Section 14 alone would give the Government what it desired. Section 14 in effect states that the Government may stimulate any particular rare metal industry by making a price. As I understand it, there are three or four rare minerals that you wish to bring forward; if you offer enough for those minerals and then permit the Government to loan enough, in the way of working capital, to develop mines having those minerals, it seems to me the Government could, working on that basis, force and stimulate the production of minerals which are not paying now at the prices prevailing. My own opinion is, and I think it was voiced in a letter from Salt Lake City read tonight, that by giving a sufficient price, stimulating the price and raising the price of certain minerals so that the properties can be worked with profit, you would get what the Government wants. I thank you very much for this opportunity. (Applause.)

The President.—Any further discussion? Mr. Callbreath.

Mr. Callbreath.—Mr. Chairman and gentlemen: I would prefer not to have very much to say about this bill because conditions may arise in which I will be forced to change my mind. We are facing a decided emergency and whatever opinions we may hold, they must all be set aside in the face of this emergency. We are engaged in the greatest war in history. We do not yet comprehend what it means. The happenings of these few days and the few days to come may bring home to us the fact that every citizen of this country must deny himself wherever it can be done and make an effort to assist in this great world undertaking to every possible extent. It is only just beginning to dawn upon us that we are fighting for the existence of government on the earth, and we must not stand in the way of any movement which has for its purpose the concentration of the powers of this Government to a point where it may act as an autocracy, because without that concentration of powers we cannot hope to win in this great fight.

We are asked to approve a bill to create a mineral controller. Whether all of its provisions are essential or not, we cannot say. If they are essential, we must approve. If, on the other hand, we feel that all the powers given in this bill are not necessary for the purposes which are sought, it will be and well that we discuss these objections and attempt if possible to direct Congress into paths by which the bill will do only the things which it aims to do, and leave undone those things which may create further complications.

The condition which faces us is critical in many ways. We

are withdrawing from the foreign trade the ships which have been bringing manganese, pyrites and other minerals, to this country. The man whom I consider the peer of the steel industry stated a few weeks ago that, if the then importations of manganese should be stopped, by the first of September the steel industry of this country would be paralyzed. He also said that 75% of the output of the steel industry was for strictly war purposes. That importation has been largely cut off. A year's supply of manganese this gentleman stated to be the usual stock essential, while at this particular time the available supply was only a little above 200,000 tons instead of 600,000 tons, so that, if importations were cut off, by the first of September the steel industry would be paralyzed and with it most of our war activities. It is essential that the best means be developed which is possible to stimulate the immediate production of manganese upon the greatest and biggest scale that is at all feasible. How is it to be done? Not by creating restrictions but by stimulating activity.

I know that some of you will disagree with me when I say that, in my judgment, there is but one thing that has ever led to the stimulation of production upon a great scale, and that is the question of price. If the product is available, if it can be produced at a profit, there is abundant capital in this country which will operate upon such a scale as to make effective the work. The men who are engaged in an industry are the men who can handle that industry best. I believe that the way to stimulate the production of manganese is to offer such bonuses for its production as will induce every individual in this country to be on the search for it, and for those who have deposits to extend their development work in the quickest way possible to bring about its production. The same thing applies to every other mineral. While this bill may contain some clauses which I may feel are unnecessary, we must urge the enactment of such a law by Congress as in its judgment will best serve this purpose even though it contains some things of which we do not approve. We must get back of this legislation and bring nothing into it which will delay its passage. It is a question of getting the legislation immediately. It isn't a question of cost, and it isn't a question of price that shall be paid for these things. The gentleman, to whom I referred, said that \$500 manganese which you had would make a whole lot better steel than \$100 manganese which you didn't have. It isn't a question of how much we shall pay for the product, it is a question of getting manganese now which will maintain the steel industries and munitions, and keep them in operation at the highest point during this special stress, when we are forced to take the ships which are bringing it from abroad. I think it is wise, in doing this, to create agencies which will help us in the future as well as to meet the present emergency. The first thing is to meet the emergency.

Let all of us get back of this measure, a measure, any measure which Congress in its judgment feels it is wise to pass, get it through, get the agencies at work, and at the quickest moment possible get at the solution of this question.

Mr. Merrill.—I am very glad to have the opportunity of saying a word. From our experience with the "Food Bill," I believe that there is something more involved in this minerals-control bill than merely a question of price. There has been a great deal said here that would lead one to believe that perhaps, if an adequate price were provided, our problems would be answered. I don't think that is true. I think that, in addition to price regulation, and of course it should be very liberal, there is another question involved. There is involved in this bill a question of priorities of use. By simply fixing a price of a metal for a given period would not give control over the use of that metal. For instance, you could take manganese and put it into pottery, if you had only a price control, and therefore I think that the other features should be kept in mind, and that full control should be provided and not be by any means limited to price regulation. (Applause.)

The President.—Any further discussion?

The Secretary.—Mr. President, I move the adjournment of the meeting of the Society and the calling of a meeting of the New York Section. **Motion seconded and carried.**

The meeting adjourned at 10:00 P. M.

LOUIS D. HUNTOON,
Secretary.

The President.—I now as President of the Society call a meeting of the New York Section. Mr. Knox, Chairman of the New York Section, will take the chair.

MEETINGS OF SECTIONS.

NEW YORK SECTION.

Meeting of April 18, 1918.

The Chairman.—Gentlemen, the President of the Society has called a meeting of the New York Section and has stated the purpose for which it is called. The New York Section is now in session. As you will understand, it has authority to take such collective action as it may deem fit, such action, of course, to be binding only on the

Section. Gentlemen, I await your pleasure. I shall ask Mr. Ingalls for his opinion.

Mr. Ingalls.—We all agree that everything must be done as quickly and as effectively as may be done in order to increase the production of the minerals in which we are deficient. It does not seem to me that, in view of the overwhelming importance of the end to be achieved, it even matters very much whether the way in which things are done is absolutely fair to everybody or not. It is quite easy to appreciate that some things may necessarily be done that will not be fair to everybody, but yet which ought to be done for the general good.

My reflections upon this bill therefore take rather the line of thought of whether it will do most effectively what it is intended to do, whether it may not by interference with our industries—and interferences are not necessarily always intentional or deliberate; they may be consequential—have the effect of tying us up into such confused conditions, such operation at cross-purposes, that we may defeat our own purpose. The experience of the world has been uniformly that the operation of natural law, whether it be the law of supply and demand or whether it be the law of gravitation or whether it be any other great natural law, is not lightly to be tampered with. We have seen arise during the course of this war many emergencies similar to the present one, not only in the affairs of this country but also in the affairs of our Allies.

The acute shortage of manganese ore, of pyrites and of other ores, that we are now experiencing is not a novel condition. In the early days of the war we had exactly the same condition in numerous industries, among others in the zinc industry. By the operation of the natural law prices rose stupendously, monstrously if you please, but they had the result of increasing the production and giving ourselves and our Allies, especially our Allies, because it was they who then needed them, the goods that they wanted. Even during the course of the war that very thing led to a state of overproduction and we find the zinc industry at the present day in a depressed condition, and the same may be said of other industries that were stimulated in 1916 and 1917. Economists in the future, when writing the economic history of this war, are going to point to the experience in the zinc industry as the most classic example and the swiftest example of the working of the natural law of supply and demand. I have a firm conviction that although the price of zinc in 1915 rose to a figure that was monstrously high, nevertheless the world obtained the zinc that it needed more cheaply and more speedily than it would have obtained it in any other way.

Now, when we contemplate the enactment of legislation of the kind that is now pending, we ought to think, we ought to consider

seriously, whether it is not possible that it may defeat the very purpose that is in view. Let us consider also if the premises upon which the legislation is based, are correct. If so, is the bill so drafted as to give the real remedies? We have already had some experience in over-estimates from Washington. We remember the over-estimates of the Treasury Department with regard to the financial requirements this year. Coming nearer to home, we had last year over-estimates from Washington, that played a good deal of mischief with our lead industry. We have thus reason to inquire whether the data on which we are going to act are correct.

As to this particular bill. One of the first reactions that I received was a letter a few days ago from a friend in the West who is a concentrator of molybdenite. He said in his letter, "I see that they are going to put through Congress a bill to fix and stabilize the price of molybdenite. What do you think they are going to do? Meanwhile, awaiting word from you, I have given instructions to discontinue the buying of molybdenite." I replied to him that the price for molybdenite had lately been very high. It had very much stimulated production. At present it seems that we have had more molybdenite being produced than we could use in this country and our Allies have discontinued buying it from us. In other words, we are apparently at this time producing more molybdenite than can be sold at recent prices. The market for molybdenite consequently is sagging and I advised this correspondent to rescind his orders not to purchase and produce no more, but to go ahead and dispose of all he could while the going is good. The War Minerals Committee includes this mineral among those which it thinks ought to be stimulated and regulated. It needs neither stimulation nor regulation. It needs simply to be let alone.

We are getting reports from all over the country, of the increased mining of manganese ore, and the increased mining of pyrites. The production of those substances is being increased in a feverish way. To read the reports that come into us every day, one gathers the impression that there may be a great deal of manganese ore in this country that has heretofore been overlooked, that it may have been overlooked in just the same way that all of us overlooked the calamine in the mines of Leadville, that many overlooked the immense deposits of magnesite in Washington, which are now producing the entire domestic requirements of this country, whereas, only two or three years ago, we had to import it. No Governmental stimulation or regulation has been necessary for these things.

Now, if there be any deposits of any minerals of any kind which private capital, with the natural stimulus of high prices, will not undertake; if, for example, the Government thinks it can increase the production of tin in this country by exploiting the mines at Rock-

bridge in Virginia, or the Harney Peak mines in South Dakota, by all means let us have the Government do it; let us have a bill which in some business-like way will confer the necessary authorization upon the Bureau of Mines or upon a U. S. mining corporation, to be organized, and provided with the funds to do such things. But let us do it without regulating industries that do not need to be regulated.

As to the subsequent control, the distribution of ores and mineral products, a subject to which Mr. Merrill has so lucidly called attention, there is no condition which effects that so surely, so swiftly, so unerringly and in such a way as to do it without putting industrial machinery out of gear—there is no way so effective of doing this as to let prices run high and do the job automatically.

For what we really need to do let us go ahead and do it, but in making plans for that purpose let us be sure that we are not going to produce interferences in our industry, most branches of which have exhibited their excellent ability to take care of themselves, and have responded—all of our major industries have done this—in a way in which, when we read economic history a few years hence, will appear like the performances of giants. The manner in which we have increased our copper producing and refining capacity, our zinc smelting capacity, our lead producing capacity, will seem like prodigies, and so they have been. In all those things, our industries have exhibited their ability to take care of themselves without Governmental assistance, and many of us may be pardoned if we think that the people who have done such things can do them better than somebody else. I think that the minor industries will give an equally good account of themselves if they be let alone. But, whatever we do, let us be very sure that we are not going to throw more confusion into conditions that are already badly enough confused, Heaven knows. (Applause.)

The Chairman.—Any further discussion, gentlemen?

Mr. Bain.—Mr. Chairman, before saying a few words on points raised by the President, I should like to say on behalf of Mr. Manning that he very greatly regrets his inability to be with you tonight. He asked me to say he had made all arrangements to be here, but the appropriation committee demanded his presence tomorrow morning early, so that it was impossible. I should also like to say for myself that it is a very great pleasure to be home again and to see so many friends.

Now, with regard to the principal points that the President has called up. While this is perhaps hardly the time to indulge in a debate on economics, I should like to point out that, with regard to the classic example of zinc, there is one factor which makes all the differ-

ence in the world. When the zinc output was increased so enormously, so effectively and so quickly in this country, capital was free. The United States Government was not absorbing large masses of money for Liberty Loans. As to Mr. Callbreath's statement that capital is available today I can say to you, gentlemen, that yesterday afternoon there was a man in our office, a member of this Society, a very eminent and able engineer, who had a project which was so sound that he had figured on war construction costs and pre-war prices, and he only needed two and a half million dollars, but couldn't get it in New York and came to Washington for it.

As to whether price regulation alone would bring out production, it has recently been my opportunity to study two regions which throw light on the matter. In one of these, Malaya, prices have doubled. I went over the whole territory with the officers and they were able to show me but one new mine, opened as a direct result of the higher price for tin. The other district that I have in mind is the Tavoy tungsten field of Burma. The British government, as you will recall, fixed a price of tungsten at 55 shillings, and it has remained at that figure. The output has increased greatly despite the fixed price. This increase was brought about by means other than price regulation; that is, it required other things than price to get the tungsten out of Burma, and the output is increasing there although the price hasn't been increased; whereas, in Malaya despite large price increases the output has fallen for want of this other action. In our country we have a tungsten price which is practically double the British price, and I am informed that our production is less than last year. High prices do not bring out the amounts we want under disturbed conditions. If we could go back to pre-war conditions then we could fall back upon the law of supply and demand, but that is not the condition we have to face.

In addition, there are other difficulties. It is not purely a matter of getting quantities of material, although that is a large factor. We must resort to unusual measures, or we will not have the materials to fight the war, and, in the judgment of the men who are on the ground, some one must be given these powers. This is the judgment of such men as Mr. Manning, Mr. Hoover and Mr. Spurr. You will note that Mr. Spurr, in the letter read by the Secretary, does not express any opinion where this work should go, but merely discusses where it might be lodged. He states distinctly that the powers do not exist anywhere now. Yesterday, in Mr. Spurr's office in consultation, a specific case which was before his committee came up. We could not find anywhere the authority to carry out the work which has been done.

We are all in the war, and we want to do the thing which will win it. If there are specific objections to this bill, they should be

brought out, but general objections without constructive suggestions are to be regretted.

With regard to the latter, I want to make one suggestion. I think we should get into the bill something which will take care of the Excess Profit Tax on these new industries. Otherwise, nobody will put in his capital, and for the Government to subsidize to pay the tax constitutes a revolving circle which will get bigger and bigger. If we are able to do this, it may help in the general revision of the Income Tax Law, when, as we all hope, the special situation in mining will be more adequately treated than now. Thank you, gentlemen.

Mr. Ledoux.—There is no motion before us, I believe, and, in order to proceed in an orderly manner, I would move a resolution and then, if it be seconded by anyone, I should be very glad to be permitted to say a word in connection with it. I will read it:

Recognizing the extreme importance of the Minerals Administration Bill now before Congress, the President of the Mining and Metallurgical Society of America on March 16, 1918, duly called a Special Meeting to be held in New York on April 18th for the purpose of discussing this Bill and eliciting the opinion of the members. This meeting having been duly held, a meeting of the New York Section, having been properly called, was convened immediately thereafter, and the following resolution offered:

RESOLVED, that it is the sense of this meeting that the general principles of this Bill tend to further the efficiency of the Government in prosecuting the war while safeguarding the welfare of the mineral industry and that this or a similar bill should be made a law, provided, however, that the products covered by said Bill as passed shall include only such minerals and metals as are really required for war emergency needs as are those specifically enumerated on page two of draft before this meeting; viz., H. R. 11259.

(Motion seconded.)

The Chairman.—The motion is made and seconded.

Mr. Ledoux.—We are all of us of one mind. It is merely a question of how we shall do it. Everyone of us wants to prosecute this war and we wish to do our bit in prosecuting it to the proper end. No man or body of men could suggest a bill that some man, or some other body of men, wouldn't pull to pieces. This is true in Congress and it would be true in this room. It is my impression that there are objectionable things in this bill. I think the way to eliminate them is for each of us to do what so many public-spirited members of this body have already done—to communicate with our Secretary, or with Mr. Westervelt, stating our objections, and particularly trying to put into the bill something that is constructive rather than to be content with mere criticism.

I speak as an outsider to a certain extent, as a man who has tried to look at this bill from the standpoint of one who is not directly interested in the buying or selling of metals or ores. It so happens that, outside of the fact that I am a very small stockholder in certain mining companies, I have not and have never been interested in the production of any metal excepting gold—I was at one time the executive of a gold mining corporation. Therefore, what I have said and what I shall say are to a certain extent the views of an outsider looking on.

Now, it has been stated that nothing but supply and demand can regulate the price of metals. That is probably true when we speak of the major metals. Supply and demand will regulate the price of iron and of copper and of lead and some other major metals, but that isn't true in regard to some of these minor metals or ores which are mentioned in this bill, because prices may be regulated by statute or are often regulated by "corners." Now, we know that while it would be very difficult, and only one great effort has been made and that failed, to corner copper so as to get an artificial price for it, yet it has been done, and it is a comparatively easy thing to do, in regard to certain of these minor products, and our enemy, the Kaiser, was at work in this country long before this war looking into the question of the production over here of certain metals which he knew would be needed for his purposes in the war if he could get them, and the result of what may be considered his major failure is still apparent. But in minor matters he succeeded for a while.

(Portion of remarks omitted at request of speaker)

In regard to that particular paragraph which has been justly criticized and which, while I am not a lawyer, I should be inclined to believe is unconstitutional, viz. paying only 75%, I imagine that the following was the real reason that it was put in the Lever Bill: If the Government comes to a man who is producing eggs and offers him a hundred dollars for a certain quantity of eggs and the man says, "No, I want \$125," the Government says, "Well, if you won't take \$100, we will give you \$75, and you can sue for the balance," and the man says, "I guess \$100 looks bigger to me than \$75 down and \$50 more at the end of a lawsuit and I will accept it." It is necessary therefore for us not simply to have a bill that would encourage mining, not simply to have a bill that will give a man what he considers adequate compensation which *shall be* adequate compensation, but to be able to compel a company owning certain deposits, which for any reason it refuses to work, either to work them or to consent that the Government take them over and work them. There are some things which are mentioned in this bill specifically that are of that class. Someone has raised the question as to whether or not arsenic is an incidental by-product which might be construed

as compelling the owner of a copper mine, which had arsenic in its ores, to yield control of the copper, also. I think the practice of the United States Government in regard to customs rules would safeguard that. You perhaps know that the question has been raised in many ports of entry whether lead in copper matte was not dutiable, whether zinc in lead bullion was not taxable as zinc, whether or not the lead in copper matte could be extracted economically or the zinc from the other product could be saved or not, and there are well established regulations in Washington covering these points and safeguarding the importers against abuses.

In this resolution I have, as perhaps you may have noticed, specifically confined the recommendation of this meeting, if it become its recommendation, to those things which are mentioned in the bill itself so as still further to relieve the mind of any member of the fear that this would be an entering wedge in the copper and iron and lead industries. (Applause.)

Mr. Moore.—Mr. Chairman, although not a member of the New York Section, I wish to make a few remarks, though much regretting that I did not hear the earlier part of this discussion. I would have been pleased to have heard the presentation of this matter from the author of the bill who sits over yonder, as it has been of great interest to me, for several months past, ever since I was drafted by Mr. Westervelt into the councils which led up to the formulation of the original bill. It was gradually borne in upon me in spite of my ancient prejudices, which I held in favor of the old law of supply and demand, that we are in a crisis when we can't give this law the time element necessary to function properly.

Now, supply and demand is a beautiful doctrine and it works nights and Sundays too, it is a fine doctrine like the doctrine of total depravity if well lived up to, but there come times when the action needed is too quick for it, there come times when nothing works normally, when the hand of power must bear heavily and when the hand of power is needed in spite of laws of supply and demand, and it is perfectly obvious, it is in my mind—everything tends to confirm it—that this is one of those times. We are feeling the hand of power, and without complaint save on the part of a few, in that we are now paying \$2.20 a bushel for wheat instead of \$3.50 a bushel, as we would have to pay had there been no Governmental interference, we are paying \$33 and \$35 a ton for our pig iron instead of \$50, as we would have to pay but for Governmental interference, and now here we have a certain line of products which need the stabilizing hand of power. Let me give you a concrete instance. I know of a pyrites mine opened within the year, ready for production, which stands idle because the acid works, which are the natural

consumers of pyrites, are actuated by what they consider to be the laws of business and of supply and demand, and they offer the owner of that product about 16 cents a unit, because under an old contract, they are able to continue their operations with sulphur. Now, a proper regulation of that industry would cut these acid works off from the sulphur and turn the product from this pyrites mine, which is within 100 miles of it, into their furnaces. There exists no organization, no authority which can do that today. This is one of many instances which arise, from time to time, and which give a clear indication of the need of power for this work. It may be necessary to raise prices for many things, but as it stands now no one has the right to raise prices. It certainly will be necessary to contract at established high prices in order to increase production.

We have had cited to us this evening the well-known instance of the zinc markets of the past few years, but that is a very different matter from that of the rarer minerals, with their limited supply, which we are now discussing. In the case of zinc, the market had not only this whole continent to draw from, but there was also the very fortuitous incident of the discovery of one of the richest hitherto unknown fields that our history has known. No such possibility as that seems likely in regard to these other metals. We shall see manganese drawn from this little property and that little property under the stimulus of a high price, if the producer can be sure that that price will obtain and if the consumer shall be forced by the hand of power to pay it.

Now, it seems to me, gentlemen, that in the present emergency we should forget our theories and only remember the fact that we need these things, that we should realize the fact that, in some way or other, the Government should handle the situation, and that it probably will handle it to better advantage than would private interests. To that end, I trust you will give full weight to the judgment of the men at Washington, who perhaps are best able to bear witness to our needs. As the fact stands, almost every man, who has tarried at Washington until he has become familiar with the situation, has come to the same conclusion, and I will close by expressing my hope that this Section shall feel it wise in its own judgment to express itself in favor of this bill. (Applause.)

Mr. Merrill.—May I add just one word to the discussion in favor of this motion, which is simply this; that the law of supply and demand and price stimulation will not control non-essential uses, and where there is a shortage a control of non-essential uses is most vital. I think I may say that today the crops of this country would be threatened with a shortage of insecticides if control had not been taken of arsenic, such control reaching to the non-essential use at

these times of arsenic in the plate glass industry. It was only by rationing arsenic to the plate glass industry, so that it should not accumulate large stocks, that we were able to give the insecticide manufacturers an adequate supply. Price control never in the world would have affected that, because the plate glass people can put their prices wherever they want to, but the farmer will only pay a certain price for insecticide. I simply add this as an appeal for a broad bill, whatever that bill may be.

Mr. Walker.—Mr. Chairman, I have had some discussion over this bill both in Washington and with some of our friends in New York, and I have expressed my opinion about it on one or two occasions and, after having thought over it very carefully and after having listened to the discussion pro and con this evening, I should like to express my opinion again.

I fully agree with the criticism which refers to the law of supply and demand in this case. I do not think that the law of supply and demand applies under existing conditions in any way. I do not agree with those who state that our friends in Washington are very badly muddled. They have enormous jobs to tackle in Washington and I think that some of us do not realize what they are up against. I think they are doing very well indeed. My opinion at the present time is that this bill in some form should go through and give the Government the authority it wants, the authority it feels it requires. I think the least we can do is to help our Government in any way it feels that it requires assistance and, for that reason, I hope this resolution will receive the unanimous vote of this meeting.

Mr. Graton.—Mr. Chairman, I hesitate to add to the discussion, at this late hour, but I had hoped that someone would raise a question that has been running in my mind all evening, and as no one has done so, I am going to raise it. I must confess to a little disappointment about the general scheme of this measure in that it seems only to draw up specifications for a machine, without indicating any of the material with which to build it. I wonder if the committee, or someone who has been working with it, has up its sleeve a lot of fundamental facts, plans and policies, that will have to go into effect to make a Mineral Administrator or a minerals-control amount to anything. If time is vital, and it has taken a lot of tremendously energetic work to get this far, who is to know what we are going to do? Has anybody any idea what prices should be fixed, what industries are to be taken over bodily, or has that yet all got to be thrashed out? I think, for my own part, I could vote very much more intelligently upon the proposition in general, if I knew whether this apparent beginning simply covers many things that are all more or less prepared but for policy's sake are not published in

that printed folder, or whether we are actually only at the threshold. I would be very glad to have a word of enlightenment.

Mr. Thomson.—I would like to express that feeling too. Such things are listed as thorium, and I know that there are two or three factories in the United States that use it for gas mantles, but the whole amount required for a year would, I believe, be about one shipload from Brazil. That is put down on this list as something we have got to spend money to find, and it seems to me as though there had not been a great deal of thought given; everything has been jumbled together, everything except the major metals—everything that might be thought of, that was not in the copper, lead and iron section, was included.

Mr. H. S. Mudd.—Not being a member of the Mining and Metallurgical Society, I hesitate to express an opinion, but inasmuch as I have come at the request of Dr. Manning I trust that I may have the privilege of saying a few words. While we possibly have not progressed as far as we had hoped in formulating a tangible definite policy for the control of these minerals, we have given a good deal of thought to the subject in a preliminary way and in a way which has gone as far as I think you can expect under the circumstances. Perhaps, the situation may be best illustrated by an example, such as the sulphuric acid industry. The consumption or rather the demand for sulphuric acid has risen enormously. The increase started when we began to manufacture munitions for the Allies. As our munition program becomes established, we face the necessity of producing sulphuric acid at the rate of 9,000,000 tons or more per year, whereas before the war we were producing less than one-half of that amount.

Mr. Ingalls.—Will you let me interrupt you a moment? When you speak of 9,000,000 tons of sulphuric acid, what do you mean? Do you mean H_2SO_4 ?

Mr. Mudd.—We always try to express it in terms of 50 degree Baumé acid. In order to meet that program we will be called upon to utilize to the fullest extent the sulphur reserves of this country. Perhaps 800,000 tons of sulphur will be burned for acid this year. With our stimulated and increased domestic output of pyrite combined with what we may expect from Canada, we still face a serious shortage of raw material for sulphuric acid. We know that the raw material exists in the west but it is remote from the markets, and we do not like to turn to the west and burden our transportation facilities if we can produce the material nearer the centres of consumption. The use of coal brasses in the manufacture of sulphuric acid is not extensive, and there is a great deal of ob-

jection to their use, particularly because the coal brasses are not uniformly prepared. The preparation and preliminary encouragement needed must be looked after by whatever organization may be called upon to take charge of the sulphuric acid situation. We are now working on the utilization of coal brasses. The Bureau of Mines is conducting concentration tests on coal brasses and several men are giving that subject their sole attention.

The sulphuric acid industry presents a lot of different problems in addition to the production of raw materials. We have found that acid produced in Michigan is shipped to the Atlantic coast, and, on the other hand, acid produced on the Atlantic coast is shipped to Michigan. We haven't utilized our reserves of raw materials to the best advantage. We must be in a position to control the use of raw materials, whatever they may be, sulphur or pyrite and the plants in which they are used. The plants in the South are equipped to burn pyrite, but in order to meet their requirements they have turned to sulphur. We see an increasing production of pyrite in the South and we must use that material as fully as possible, and at the same time we want to conserve our sulphur resources so that plants which are more remote can be supplied sulphur. We look forward, if this bill should go into effect, to compelling or urging fertilizer companies to use pyrite produced in the South in preference to sulphur, conserving sulphur for concerns on the Atlantic coast which formerly received their pyrite from Spain.

Another problem that confronts us is that we will probably have excess fines pyrite produced in the South. We want to be in a position to say to fines burners, "You must use this material to the fullest extent and not burn sulphur." Lump burners which may have a scant supply should be permitted to burn sulphur. I repeat again that the utilization of our resources to the fullest extent requires a certain amount of control over the raw materials used by separate plants. That also means direction of transportation. We do not want any cross-hauling. We want to eliminate useless railroad traffic. At the same time, we want to make every effort to supply the plants to their fullest capacity because we will need every ton of acid we can produce and at the present moment, unless we can very materially increase our output of sulphur and pyrite also, we face a shortage of sulphuric acid for our Government program.

The organizations of the Bureau of Mines and the War Industries Board have given a lot of thought to this subject and will have concrete recommendations to lay before the organization of the Mineral Administrator, if such an administrator becomes a fact.

May I point out some other facts which may be helpful? The bill does not provide that the Government may take over operating

or running mines; it provides only that the Government may take over undeveloped, idle or insufficiently operated mines. By insufficiently operated mines we mean those that are not operated to their full capacity or with greatest efficiency. In the original bill, the Government was empowered to take over mines—any mine—but it has been modified and limited to idle, undeveloped or insufficiently operated properties. We find numerous instances where properties which have real merit and which could contribute a very material amount to our production of manganese, or a variety of other products, are idle because they are tied up in litigation. There are a number of cases which have been brought to our attention. If the Government were given the power these mines could be made to produce without injury to the owners. The compensation could be paid into the hands of a court and at a later time, when the litigation had been decided in favor of either contestant paid to the rightful owner.

I would like to emphasize the fact that existing powers in Washington are not adequate. We speak of the President as having power to requisition supplies. He has power to requisition supplies for the Army and the Navy and this power has been exercised up to this time to requisition finished materials only. If we assume, however, that he could requisition all materials, such as manganese ore, pyrite, etc., and did so under existing laws there is no authority by which he may dispose or sell those products to any but Government agencies. We have been trying to beat around the bush and persuade the Navy Department, and other departments, to make contracts for pyrite, but we have not been able to induce them to do so because none of the Navy and Army plants is equipped to burn pyrite, and they point out that if they should buy pyrite they would have difficulty in selling it; and if they were permitted to sell it by some special regulation the money derived from that sale would not return to their appropriation but would return into the general fund of the Treasury; in other words, the department would lose complete control of the money which they expended. We hoped to develop coal brasses in an indirect way by offering contracts to coal miners, but the Navy Department and the Army Department have not seen their way clear to do it, because their own funds would be depleted. This fact was brought out very well in the hearings by Mr. Baruch, who emphasized the difficulty of disposing of Government property, and he was very insistent that provision should be made for that object.

I would point out also that the price fixing which has been undertaken by the War Industries Board has generally been confined to finished products and applied to those industries which are well organized, and represented by large units. It has not attempted to

set prices on raw materials, and the difficulties are evident when you consider the many small producers of manganese, chromite and a number of other minerals. I may say that over 50% of our manganese is produced from mines whose total output is less than 5,000 tons each. It has been essentially a small man's business up to this time and the small men, not the large companies, need encouragement and protection. This bill is essentially constructive. Many penalty clauses in it at first seem ominous and frighten one, but I think it will prove to be the case that the bark is worse than the bite.

Regarding the efficacy of raising prices as a means of stimulating production, I think that is evident. I want to point out, however, an instance illustrating another viewpoint, which I think Mr. Merrill will confirm. Arsenic, before the Food Administration took over the administration of that article, was selling at 14 and 15 cents a pound. Farmers were constrained to use it sparingly and not as much as they ordinarily would and not as much as they normally should. Through its efforts the price of arsenic has been materially reduced and the essential needs, namely insecticides, have been fully met. That is an example of protection to the consumer which is one of the purposes of this bill. It isn't solely for the benefit of the producer, for we aim to protect the consumer in the price which he pays and we aim to protect consumers of essential commodities, making certain that they may always have an adequate supply, even if it must be at the expense of some other man engaged in a non-essential industry.

We do not contemplate that the Government will take over and operate mines on a large scale. I do not think anyone in Washington wants to undertake that burden. I am sure it was not the intention of the framers of the bill that the Government should go into the mining business, except in cases of extreme necessity, as in the case of idle or undeveloped mines. May I say also that we have tried to meet the suggestions set forth in Mr. Spurr's letter by including in the bill a number of minerals which he recommended, all of which present a shipping problem. As you look at the list many of them appear strange and you wonder what the problem may be in that particular mineral, but I assure you that we haven't included anything which is out of place. In some cases, there is no evident problem now, but we anticipate that there may be a problem. We are trying to look to the future. We have included a number of unusual minerals, such as osmium, thorium, etc., and another metal which I can't mention because its use is considered confidential, but the War Department is concerned over the supply of those metals which has now assumed great importance. We cannot look forward clearly into the future and say that we will not need many of the things which appear unnecessary today. You will notice other substances

such as clay, grinding pebbles, and chalk, yet each one presents a distinct shipping problem and, if imports are cut off, somebody must assist the domestic consumers to find an adequate supply of material which will satisfy their needs. It may require a great deal of research and work to develop material equal in quality to that formerly imported, and as Mr. Spurr has pointed out, the powers vested in the War Industries Board are inadequate. Even if all the powers vested in the various boards in Washington are combined, taking one power from one organization and one from another organization and vesting them all in a single organization, there would still be insufficient authority to stimulate production in the proper manner, to see that the essential industries are supplied and to regulate distribution.

All of the minerals on this list do not present serious problems from the point of view of our own production. Many of them, such as tin and antimony, we know cannot be produced in quantity in this country at anything approaching a reasonable price, if we can produce them at all. Tin is out of the question. There is some doubt about antimony, but it is my opinion that a price many times the present one would not cause an increased output sufficient for our needs. But if we are going to use valuable shipping space to bring these metals in, we want to use them to the best advantage. This bill provides that the Government may control their use and so conserve shipping.

The question of tin is an interesting one. I have just been attending a number of conferences on tin which have been called by the Commercial Economy Board of the Council of National Defense. It is doing extremely good work but it has to rely entirely on the co-operation of the business men. I am glad to say that co-operation has been given in a very generous measure, and there is no complaint to be made, but in the future we may find that some coercion is necessary, as for instance, in the smaller industries where there are trade secrets with keen competition it is difficult to expect that manufacturers will come to a conference and speak openly regarding their own business.

In conclusion, I wish to say that Dr. Manning has followed the progress of this bill through its different stages and vicissitudes and he is in full accord with its principles. There may be other ways of approaching the matter, but this bill is the one which offers the most immediate relief, and it incorporates those principles which we believe must be incorporated in any legislation intended to effectively secure the desired results. I thank you. (Applause.)

The Chairman.—Perhaps Mr. Westervelt will reply to the question put by Mr. Graton?

Mr. Westervelt.—I think the reply has been pretty well made by Mr. Mudd.

The Chairman.—Gentlemen, if there is no further discussion I will put the question. All those in favor will please so signify. (Motion carried.)

The Chairman.—The motion is carried.

Mr. Westervelt.—May I ask if there is any desire on the part of this meeting to ask for a vote of the Society?

The Chairman.—What is the pleasure of the meeting?

Mr. Westervelt.—I simply raised a question. Is it the sense of this meeting that a vote of the Society should be taken, a ballot for the Society to take action? I simply raised the question.

The Chairman.—Is there any motion to this effect?

Mr. Huntoon.—Would you like a referendum taken?

Mr. Westervelt.—I think it would be very desirable.

Mr. Huntoon.—I then move that a referendum be taken of the Society at large. (Motion seconded and carried.)

Meeting adjourned at 11:10 p. m.

G. D. VAN ARSDALE,
Acting Secretary.

Addenda.—Other members responded to the request for an expression of views on the minerals-control bill, but as their communications were received subsequent to April 18, they were not presented at the meeting of the Society. It seems, however, essential that they should be here included as a part of the general discussion of this important legislation.

Under date of April 20, Gerald Sherman writes in part as follows:

If properly handled, it would no doubt be of considerable benefit. An appropriation of fifty million, however, to promote the production of the necessary minerals, would be useless unless it was controlled by men having authoritative knowledge of the comparative needs of different minerals and the possibilities of supplying them in this country. I believe on the whole, it would be a benefit.

I can see no object, however, in dragging in the tariff. The imports into this country are now being controlled by Government. Imports which do not involve shipping should be encouraged to the greatest

possible degree, as anything which can be made or purchased outside leaves so much to the good.

H. H. Knox, Chairman of the New York Section, who was present at the meeting, writes on April 24 in further discussion of the bill, as below :

Discussion of the Bill to create an Administration for the Mineral Industry now pending in Congress has elicited the criticism that it covers altogether too much ground and that Section 14 would alone be sufficient to accomplish the purpose sought, that is the stimulation of the production of certain necessary minerals. The fallacy of this assertion will, I think, become apparent on closer scrutiny.

Section 14 empowers the Government to fix the prices of certain specified minerals and products and it is argued that the authorities have but to mark the price high enough, of course under the guarantee of a certain permanency, and the fullest possible production of such minerals will ensue. This may be conceded but the question then follows: What must be the price necessary to call forth the fullest possible production? An ordinary price is sufficient reward for the producer of a high grade ore, a higher price will call forth the production of a medium grade ore, but in some cases nothing short of an excessive price can stimulate the supply of a low grade ore. It is conceivable that a certain scarce commodity might become an absolute necessity worth almost any price but in order to obtain it through the powers granted by Sec. 14 the Government would have to pay an exorbitant price to all producers alike, whether their costs were high or low, thus bestowing undue profits on some in order to assure reasonable profits to others. In order therefore that the Government shall command the situation, it is necessary that it be granted the power to deal with producers individually, a power not accorded in Sec. 14. In certain cases, it might even be expedient to purchase a product from an individual and sell to the trade at a substantial loss.

The bill if it becomes law, will provide the administrator with wide opportunity for mismanagement, stupidity and graft, but it has been charged that our democratic system is so intent upon restricting in its servants the opportunity for evil, that it has neglected to provide them with the power for good. Under war conditions, in order that democratic ideals may triumph, democratic practice must be limited until the Government becomes virtually a despotism tempered by criticism, and as the despotic powers of the Government are extended, so does the duty of the citizen, and in this case of the profession, become more imperative to watch and criticise the acts of our public servants constructively and encouragingly when we may, destructively when we must, but always with the single end in view of putting the German Empire out of business as an instrument of evil.

Due to the absence of members, no formal gathering was held in Boston to discuss the bill, but Professor Lindgren did receive a number of replies to his call for a meeting. Among them, was that of A. H. Rogers, reported as a part of the minutes of the Society meeting, and this which follows from George A. Packard:

The chief objection seems to be that the prospectors talk as though they did not care to investigate minerals and locate them and then have the Government take the properties away from them. My understanding

is that the Government will pay a reasonable compensation and I have tried to make them understand this. The standpoint does not seem to be as patriotic as we wish it might be. Personally, I am inclined to approve the bill.

With reference to what Mr. Packard says, Professor Lindgren remarks that, from what he has heard, men with small properties would be glad to exploit them if they could sell the ores to the Government directly.

Referring to the legal aspects of the minerals-control bill, Mr. Archibald Douglas, who at the meeting of the Society called attention to certain provisions which in his opinion were not legally sound, now sends to the Secretary certain suggestions for amendments to the bill:

Amend the bill as follows:

Section 1, page 2, line 1, after the word "thereof" and before the words "to wit," add the words:

"Which are valuable principally on account of a content of the following minerals or substances."

Amend Section 10 by striking out the words on page 10, beginning "If the compensation so determined" and going to the end of the section, and substitute in place therefor, the following:

"If the compensation so determined be unsatisfactory to the person entitled to receive the same, the entire amount of such compensation so determined shall forthwith be paid to such person, but the acceptance thereof shall not act as a bar to any suit by such person against the United States to recover such further additional sum that such person may claim, in order to constitute just compensation for such necessities or storage price, and jurisdiction is hereby conferred on the United States District Courts to hear and determine all such controversies; PROVIDED, however, the person so suing may be required to file with the United States District Court, such bonds for costs and disbursements as the Court, on motion of the United States may order, and further PROVIDED, that if such suit is instituted and the Court finds that such person has been paid more than just compensation for such necessities so taken, the United States may have judgment against such person for any excess determined in the judgment of the Court to have been paid to him by the United States."

Amend Section 12, page 12, by striking out, beginning "if compensation so determined be unsatisfactory," on line 1, and ending with the words "Judicial Code" on line 9, and substitute therefor the following:

"If the compensation so determined be unsatisfactory to the person entitled to receive the same, the entire amount of such compensation so determined shall forthwith be paid to such person, and such person may thereof institute a suit against the United States in the same Courts and with the same powers and privileges to the person so suing, and to the United States, as provided in Section 10 of this Act."

Also, in this same connection, H. Foster Bain has forwarded to this office legal opinion with reference to the question as to whether the War Minerals Act, as now drafted, might be construed to include

the major minerals. Mr. Bain states that legal advice was requested because he thought that the meeting of the New York Section felt some uneasiness on this score. This legal opinion, dated April 23, follows:

Memorandum for the Acting Director:

In response to your memorandum of April 22, 1918, as to the construction which might be placed upon the War Minerals Bill (H.R. 11259).

I do not believe that this bill could possibly be construed to include the larger metals such as copper, lead, zinc, steel, etc. If Congress had intended to include these metals it would undoubtedly have said so. The expression of one thing in legislative enactment is the exclusion of others. There is every indication that the bill is limited to the minerals specifically mentioned therein. Paragraph 1 of the bill provides:

"That by reason of the existence of a state of war, it is essential to the national security and defence, for the successful prosecution of the war, for the support and maintenance of the Army and Navy, to assure an adequate supply, equitable distribution, and to facilitate the production and movement of necessities, which necessities are defined in this Act to include **only** the following named mineral substances and ores, minerals, intermediate metallurgical products, metals, alloys, and chemical compounds thereof, to wit: Antimony, arsenic, ball clay, bismuth, bromine, cerium, chalk, chromium, cobalt, corundum, emery, fluorspar, ferro-silicon, fullers earth, graphite, grinding pebbles, iridium, kaolin, magnesite, manganese, mercury, mica, molybdenum, osmium, sea salt, platinum, palladium, paper clay, potassium, pyrites, radium, sulphur, thorium, tin, titanium, tungsten, uranium, vanadium, zirconium, **and of other rare or unusual elements**, the supply of which may, in the judgment of the President, be inadequate for war and industrial needs;"

The blackface language of the provisions of this section very clearly indicates that control is to be limited to the minerals specifically enumerated. In Sutherland's Statutory Construction, the following appears:

"The proceedings of the legislature in reference to the passage of an act may be taken into consideration in construing the act. Thus the reports of committees made to the legislature have been held to be proper sources of information in ascertaining the intent or meaning of the act."

In this connection reference may be had to the following language contained in Report 493 from the Committee on Mines and Mining, relative to the bill in question:

"Section 1 of the bill enumerates the different minerals and other products which are defined as necessities and are limited only to those minerals and metals as enumerated in the bill. There are unusual elements spoken of in the bill which apply to a few minor minerals for which some unexpected demand might come for military purposes. No major minerals are included in this classification.

"In the case of minerals enumerated in this bill, the number of those who might be licensed must necessarily be small so that there will not be any great expense or difficulty in performing this work. There are now twelve producers of sulphur in the United States and probably less than a hundred of pyrites and not more than two or three hundred of manganese."

The following opinions and decisions of the courts in regard to

duties upon imports are more or less applicable to the situation here presented:

"In custom laws, as in all others, the intent of the lawmakers is the law. (1887) 18 Op. Atty. Gen. 533.

"The commercial designation of an article when clearly established, and shown to have been definite, uniform, and general, will control, in the construction of a tariff statute. *U. S. v. Burlington Venetian Blind Co.* (1912) 3 Ct. Cust. App. 378.

"The white powder known to the trade as 'refined bauxite,' which is manufactured from bauxite by removing from the crude ore the impurities of iron, silica, and titanitic acid, held not bauxite, within paragraph 501 of the free list of Act 1890. *In re Irwin* (C. C. 1894) 62 Fed. 150.

"The provision of Act 1897, par. 183, for 'unwrought metals,' does not include ferro-alloys which though capable of being wrought into different forms and shapes, are not to any extent shown to be imported to be themselves wrought into useful articles, but are generally used for imparting certain qualities to steel in the process of its manufacture. *U. S. v. E. J. Lavino & Co.* (1909) 175 Fed. 964.

"Ferrochrome held dutiable under Act 1894, by reason of its similarity in use, as ferromanganese, and not enumerated or provided for. *U. S. v. Dana* (1900) 99 Fed. 433.

"Tungsten ore, or wolfram, held dutiable under paragraph 183, Act 1897, as 'metallic mineral substances in a crude state,' and not exempt under Free List, par. 614, as 'minerals, crude, or not advanced in value or condition by refining or grinding, or by other process, not specifically provided for,' nor dutiable as a 'raw or unmanufactured article not enumerated or provided for.' *Hempstead v. U. S.* (C. C. 1902) 115 Fed. 256.

"An alloy in the form of pigs, which is used chiefly in hardening manganese bronze, and which, in order to produce that effect must be melted and mixed with other metals, held dutiable under paragraph 183, Act 1897, as 'metallic mineral substances in a crude state, and metals unwrought,' rather than under paragraph 193, relating to articles composed of metal, or paragraph 122, by similitude to the 'ferromanganese' there enumerated. *Thomas v. William Cramp & Sons Ship & Engine Bldg. Co.* (1906) 142 Fed. 734."

Very respectfully,

PAUL S. BLACK,
Law Examiner.

SAN FRANCISCO SECTION.

Meeting of April 16, 1918.

The San Francisco Section of the Mining and Metallurgical Society of America, held a joint meeting with the local section of the American Institute of Mining Engineers at the Engineers' Club, San Francisco, on Tuesday, April 16, 1918. The meeting was preceded by a dinner at the club. Letters from the parent body in New York asking for the consideration of the proposed bill before Con-

gress, and an expression of our opinion relative to the appointment of a Federal Administrator of Mines justified the joint meeting of the local section of the two mining societies in that a more representative opinion of the engineers of California could be obtained. The meeting was called to order at 7:15 p. m., by Mr. Frank H. Probert, Chairman.

The following members of the M. and M. Society were present: F. W. Bradley, G. H. Clevenger, E. A. Hersam, E. L. Oliver, F. H. Probert, D. M. Riordan, F. L. Sizer, H. W. Turner.

The following members of the American Institute of Mining Engineers were present: R. H. Elliot, A. A. Hanks, D. B. Huntley, E. Jüssen, A. C. Lawson, P. Locke, C. J. Reed, T. A. Rickard, W. H. Shockley, L. C. Uren.

Mr. Probert read a letter of March 14 from Secretary Huntoon asking that the meeting be called. He read excerpts from the supplement of BULLETIN 117 of February 28, 1918, of the Mining and Metallurgical Society, containing a copy of the proposed bill, so that all present might be advised of its essential contents. He briefly commented on the urgent need of such legislation and invited discussion of the subject.

The Chairman.—There already exist many boards, minor bureaus and committees with limited power to act, gathering information, correlating data and suggesting new fields of work in the mineral industry. There is no centralized authority; no power to stimulate interest in the development of emergency minerals, or stabilize industry. It is necessary that such authority be appointed whose rulings shall become binding on the community. The proposed bill to provide for the national security and defence by encouraging the production, conserving the supply, and controlling the distribution of those ores, metals and minerals which have formerly been largely imported, and of which there is or may be an inadequate supply, was drawn up by the War Minerals Committee after careful consideration, and has been debated and discussed by federal bureaus such as the U. S. Geological Survey, the Bureau of Mines, the Raw Minerals Section of the Council of National Defence, and by leading engineers in the eastern states. It has received their commendation almost without exception. It has been argued pro and con in the columns of the technical journals, and has been the subject of committee work both in the western and eastern states.

We all recognize the importance of some directing hand empowered to encourage the development of essential rare metals, and to guarantee a market for the products obtained. By the establishment of such an administration, further duplication of effort will be eliminated, and the many perplexing problems constantly arising

in the several states can be solved by such authority. The primary object of the bill is to stimulate and stabilize the mining of essential war minerals in the United States, and by so doing enable some of the ships now engaged in carrying these minerals from foreign countries to be put to other purposes. The shortage of ships makes it imperative that unnecessary imports be stopped. Nevertheless, I feel that the regulation of trade rather than placing an embargo on imports would be better. We must balance the gain of a few ships in carrying war materials to Europe, against the cost of building trails, roads, railroads, mining and smelting plants, and the labor involved thereby in the possible exploitation of small mineralized areas perhaps, at this time, far removed from transportation facilities.

I consider the work of the proposed Mining Administration would be divided into three main fields of effort, statistical, investigative and executive. It is necessary that accurate data be obtained and properly catalogued concerning the importation of essential minerals. We should know the available power that is, or can be, developed in the Pacific states, and information should be at hand concerning the capacity of metallurgical plants, and the possibility of converting them so that they might be used for the beneficiation of ores or materials for which there is urgent demand. It has been stated by the Bureau of Mines that on extreme necessity the United States can do without 75% of the minerals imported today. Geologists, mining engineers and metallurgists can be helpful in the investigative and economical methods of mining; in experimentation and the working out of concentration and reduction processes; in suggesting substitutes for materials that are absorbing part of the metal output, and which are not essential for the well-being of the country or the successful conduct of the war. The executive side of the work will be directed toward the fixation and regulation of prices; the making of contracts and arranging for deliveries of metal to the proper markets. It will enforce the curtailment of consumption of metals for unnecessary purposes.

One of the great fields of usefulness that such an administration can fill, will be in the influence it can bring to bear in the regulation of mine labor. It is essential for the conduct of the war that the men sent to the front, be properly equipped. Metals are as necessary as men and money. We need metals for munitions; metal for ships, and metals for the plant to manufacture them. The miners and metallurgists are to be considered as drafted men, each playing an important part in the great cause. The mining industry, by such an administration, will be directly co-ordinated with other bureaus, so that an efficient organization may be brought about.

Mr. Clevenger.—I do not know that I have a great deal to say on this subject, as I am not very well informed in the matter.

I have just come from Washington, but anything I say is not of an official nature. One point that has particularly impressed me in travelling around the country and talking to some of the operators, is the need of stabilized production. Take for instance manganese; it is constantly urged to produce more manganese. As a matter of fact, one is hardly justified in opening up a deposit, more particularly of low grade ore, which may require extensive investigation before it can be brought up to market grade. One of the most important features of this bill is the possibility of fixing the price more or less permanently, which will encourage owners of prospects and capital to take up new prospects and expend money to bring them up to the producing stage. Another point is the possibility of substitutes. Take for instance chromite. There has been a considerable amount of chromite used as a refractory. I listened to a discussion in New York where it was said that magnesite can be used in the place of chromite. This means considerable help along the lines of chromite.

In connection with manganese, particularly in California, we have a number of deposits of low-grade manganese ore. Most of these deposits are rather silicious and not suitable for ferro-manganese. On the other hand it is possible with such material to produce an alloy of manganese with silica, which is fully as good in the steel industry as ferro-manganese, so that if the public can be convinced that this low-grade manganese ore can be used, it will open up a considerable field. Also in connection with this manganese situation, there is another point which is distinctly important, and that is the possibility of treating low-grade ore and producing high-grade material. The same more or less holds good with all materials in the making of special steels. The bill as a whole, is undoubtedly a move in the right direction. It seems to cover the subject pretty well, and I am sure if we can get a proper administrator, that it will result in a great deal of good to the industry, particularly at this time.

Professor Lawson.—It strikes me that we have a bill here formulated for a certain purpose, and that is to assist in carrying on the war. We need ships, and every ship freed will contribute something to the successful prosecution of the war. We are here to make any suggestions that can be made to improve the bill, and can spend quite a profitable evening discussing the situation. I have read the bill carefully, and it seems to me to be very competent and adequate, if we get the right administrator. There is one place, however, in Section 14 of the bill as drafted, worthy of consideration here, because it is a definite proposal in the bill, that might be modified, and that is the guarantee of certain prices for the period of the war, not exceeding two years. I do not think that two years is long enough; it should be changed to read three years, having in mind what is involved in opening up manganese and chromite properties

in California, which may require the building of roads, putting up plants, milling, etc. If we could get an expression of opinion from the gentleman here, we could make a little headway.

Mr. Clevenger.—Professor Lawson is quite correct; the time should be extended. It is one of the most important features of the bill.

The Chairman.—I understand that a similar bill has been enacted by the British Parliament which guarantees prices for metals for the period of the war, and two years thereafter.

Professor Lawson.—In order to bring the matter to a head, I move that it is the opinion of this assembly that the time mentioned in the bill should be increased to read for the period of the war and two years thereafter. (**Motion seconded by Mr. Rickard.**)

Mr. Huntley moved that it should read for the period of the war and one year thereafter.

Professor Lawson.—The war might end very suddenly, and men who have put up money in this state, trusting to favorable prices, should be protected. At the mere prospect of the sudden termination of the war, prices would drop, and it would not be possible for them to even break even. I do not think the time should be limited to one year. I think it should be for the period of the war and two years thereafter, if we want to accomplish the purpose for which the bill was intended. In this way, the Government cannot fail to encourage production, and it ought to take the chance.

Mr. Rickard.—Originally the bill covered the entire mineral industry, but now it is restricted to the secondary minerals. It represents hardly a sixteenth of the mineral production of the United States. I think Professor Lawson's motion is eminently sound and should be supported. Unless ample time is given it will not be worth while. There is another point and that is the question of excess profits. We know the risk in mining, and we know that even at the best the risk is extremely large, and taxation should be proportional to the risk. What does the mining profession consider a fair risk? If you promised a man 50% profit every year, it might not be good enough. The risk would have to cover a lot of blanks. The war may last for five years, yet it may terminate in two or three years, and in the course of three years, even an energetic and capable man may have most of his time taken up in testing blanks.

Professor Hersam.—We are concerned with the proposed bill before us for discussion as a bill in its entirety, and also as to its detail. We have not gone very far into a consideration of the advisability of the measure, and it is perhaps not becoming particularly

to the mining profession to discuss its advisability. It is a national measure. It is a question as to the need of the country and the need of the Army, and it is for the country and Army to decide as well as the mining profession. Our function here tonight, if we approve of this bill, is in reconciling ourselves to its draft and adoption. There is not much to be gained by the mining profession; if there were, it would not be well for us to propose it. In these days, the fundamental measure is the winning of the war, and in comparison to that everything else sinks to zero. Profits would be nothing to us if the war is not successful. There is another point; price fixing is artificial. There is a natural force that adjusts all these things—the condition of supply and demand. We recognize that price fixing is only an emergency measure. We are willing to accept price fixing in all commodities, no matter how close, and there seems to be no other means of guaranteeing against hoarding.

I feel that as a society we are pretty well agreed as to the necessity of this measure. But we could sit here in consultation for weeks and attempt to adjust the details of this measure, and we still could not foresee conditions. If this bill is passed, it must be flexible. Its details must be left very largely to the wisdom of the administration board. There are a great many things in the bill that will lead to difficulties. The matter of conservation, and the discard of waste. Who is to say what is waste? All of these matters would be of vital interest to the big industries.

Mr. Clevenger.—Some of these manganese deposits could not be opened up in less than eighteen months. Suppose the war should end in five or six months?

Professor Hersam.—If we guarantee prices for too long a time, there ceases to be urgency for immediate development, which must be guarded against.

Mr. Rickard.—The fixing of prices is artificial and crude, but the war is artificial and crude.

Mr. Huntley withdrew his motion.

Mr. Bradley.—I think the title of the bill is misleading. As I understand it, it is for the purpose of creating an appropriation for the buying of minerals for the war. Professor Hersam has sounded an idea that should be given attention and that is whoever administers this fund, suppose for instance it is the Bureau of Mines, should not be limited to any time or any price. One mineral may require a certain price for two years, and another mineral may require a certain price for five years. This should be left to the discretion of the administration.

The Chairman.—A great deal of work has been done by the State Council of Defence (California) in the investigation of mineral deposits throughout the state. As yet there has been little public interest taken in developing the resources. This lack of interest is largely due to the fact that the period of demand for the minerals is limited. It takes money, time and effort to beneficiate these products, and at the prevailing prices there is not sufficient inducement to go ahead. It is for this reason perhaps that the matter of price fixing and time limit is proposed in the bill.

Mr. Reed.—There is a clause in the bill providing for the making of contracts. If there is any demand for minerals for so many months or years, the money would be available out of the \$50,000,000 appropriated by the Government. If they found that the prices offered, stimulated the production, the prices could probably be lowered for later contracts. I do not think the prices will last for three years; they will very likely change, and it all comes back to the proper administration of the bill. It is certainly most important that the industry should be stimulated.

Professor Lawson.—These remarks apply to going industries. When we are dealing with chromite and manganese, we have to create industries where a great many small properties will only produce a few thousand tons. When people enter a new country they do not know what is there, but they will go ahead if there is a guaranteed price. Manganese deposits in California are all small, but numerous.

Mr. Sizer.—The contract price might differ in different states.

Professor Lawson.—Chromite and manganese are peculiar to this state, but a good many thousand tons could be produced. Time is important; the shortest cut is necessary. The country is paying heavily for shipping. We ought if possible, to get these things in the country, even if it costs a good deal. Ships are precious. We must bear in mind the extraordinary times and must make sacrifices.

The Chairman.—The bill, I think, provides that a reasonable profit should be assured those putting up money for the development of these minerals.

The motion is that prices should be fixed for the period of the war and two years thereafter. **(Rising vote; motion carried.)**

Professor Lawson.—I learned recently of a good manganese property in the northern part of the state, but one of the obstacles in the way of development is the high cost of transportation on a branch railway which connects with the Santa Fé. I do not remember the figures, but the cost as told to me was exorbitant, in fact

almost prohibitive. Can anything be done about this, as the United States now controls the railways? Can attention be called to the fact that development of many of these deposits is contingent upon a reasonable freight rate? I speak guardedly. I think this information might be forwarded to the Government. These excessive charges hinder the development of many good small properties.

Mr. Rickard.—An incident somewhat similar was told me in my office. Two miners found a deposit of chromite. In order to reach their property, it was necessary to cross the property of a well known mining man in California. That person would not allow them the right to cross his property, and they could not exploit their prospect. He subsequently bought this property from them and then shut it down. There may be enemy people who are buying properties and then shutting them down.

Mr. Reed.—I believe the prices should be f. o. b. a certain point.

Professor Lawson moved that the price fixed be f. o. b. nearest shipping point. (**Motion carried.**)

Mr. Rickard.—The risk in mining is greater than in other industries. Will the administration take this into account?

The Chairman.—The administration will in all likelihood be mining men of wide experience, and will be alive to these difficulties.

Mr. Locke.—Will the Government operate the properties, and will they also have the right to shut down properties if they are not economically worked?

The Chairman.—The bill provides for this.

Mr. Huntley.—When the Government takes over a property, will the owner be suitably compensated for same? He should receive a fair compensation.

The Chairman.—The bill provides for this.

Professor Lawson.—It is my understanding that the one purpose of this meeting is to help in forwarding this bill to Congress with any suggestion that we may be able to give. Possibly it might be desirable for us to express this approval so that it can be conveyed to the two societies.

The Chairman.—A report of the meeting will be sent to the American Institute of Mining Engineers and the Mining and Metallurgical Society of America. I think it advisable that an expression

of our approval of the bill and such modifications as have been suggested should be sent to the societies.

Professor Lawson.—I move that a resolution expressing the sense of the joint meeting of the local section of the American Institute of Mining Engineers and Mining and Metallurgical Society of America, be forwarded to the secretaries of the two societies to the effect that we heartily approve of the purpose and intention of the bill designed to promote and stimulate the production of minerals necessary for the successful prosecution of the war, and that we suggest prices should be fixed for the period of the war and two years thereafter, and that these prices, guaranteed by the Government, should apply at the nearest shipping point to place of production of the minerals. (**Motion carried.**)

The meeting then adjourned.

E. L. OLIVER,
Secretary.

COUNCIL.

Meeting of April 18, 1918.

At the call of the President, a meeting of the Council was held at the Columbia University Club, New York, on April 18, 1918, at 6:15 p. m. This meeting of Council immediately preceded the special meeting of the Society called for the same date, W. R. Ingalls, the President, was in the chair, and other Councillors attending were Messrs. Catlin, Dorr, Huntoon and Kirby. Prof. H. S. Munroe, who chanced to be present, was invited to join the meeting.

The minutes of the previous meeting, on March 8, having already been submitted to the Councillors for their consideration, and no corrections or amendments having been received by the Secretary, they were approved as thus submitted.

Minerals Administration.—The Chair opened the discussion by explaining the purposes for which the general meeting of the Society, for this date, had been called and stated that, according to his understanding, something in the way of a resolution, which would express an endorsement by the Society of the War Minerals Bill, was to be offered, and he thought it but proper to inform the Council that the by-laws do not actually permit the passing of a resolution of this character, which to all intents and purposes would speak for the Society at large. Moreover, he pointed out that, if such a resolution were worded in a way to express only the opinion

of the meeting itself, this would be simply beating the devil about the bush. Mr. Ingalls, however, suggested that a meeting of the New York Section might be called immediately after adjournment of the general meeting of the Society, and that then the Section might take action on a resolution with reference to the minerals-control legislation.

Thereupon a lengthy discussion took place in which all of the Councillors participated, and during which the suggestions and advice of Prof. Munroe were requested. Finally, as the members of Council present were in general agreement with the President that no binding action could be taken by a meeting of the Society at this time, Mr. Kirby proposed the following resolution:

That, in the opinion of the Council, it is incompetent for the Society to take any action on the question of a Minerals Administration, or on any other resolutions endorsing or condemning matters of public or professional interest, unless a referendum of the members be taken, with allowance of 30 days for the vote, as expressed by the by-laws.

That, however, it is competent for the President to call a meeting of the New York Section which may take any action which it may see fit.

This resolution was properly seconded and carried unanimously.

Amendments to By-Laws.—Mr. Ingalls then stated that the special meeting of the Society to be held this evening had been called also for the purpose of considering certain proposed amendments to the by-laws, which had first been submitted to the membership at the annual meeting. He, however, called attention to the fact that the minerals-control legislation would probably receive a very full discussion and that much time would be consumed in its consideration, and he therefore suggested that these amendments might be approved en bloc by the meeting without a formal reading, or, better still, that they might be withdrawn from present consideration by the Society; as a further reason for this course, it was explained that additional amendments were perhaps desirable, and thus it might be well to defer action for the present. The other Councillors believing that the latter course would be the wiser, and Professor Munroe having suggested that the consent of the meeting for this object be obtained, it was thereupon moved by Mr. Dorr as follows:

That the consent of the meeting be requested for the withdrawal of the amendments to the by-laws which were first presented to the membership on January 8.

Being duly seconded, this resolution received the unanimous vote of the meeting.

Special Committees.—The Secretary announced that the Executive Committee had authorized the President to appoint special advisory committees relating to specific ores, metals and alloys.

and that the approval of the Council for this action was desired. The Secretary pointed out that committees of the same general character had been organized by the American Committee of Engineers in London, and that apparently these committees had been doing sterling service. He also stated that, in his opinion, a special committee should have been appointed to handle the matter of the Crippled American Soldiers, material for which had been accumulating at the office of the Society, and he called attention to the fact that it would have been advisable if a committee had had charge, during the past few weeks, of the question of an Administrator of Minerals.

After proper motion had been made and seconded, the approval of the Council was given to this action of the Executive Committee.

War Committee of Technical Societies.—The Secretary reported that, with the authority given him by the Executive Committee, he had forwarded a check for \$45.30 to the W. C. of T. S. in payment of dues of the membership (302), and in agreement with a motion which had been passed by the W. C. of T. S., reading as follows:

That the Societies represented on the War Committee, in addition to the four Founder Societies, be asked for the payment of dues, on the basis of 15 cents per annum, for each member of the Societies; this being upon the same basis as the contributions of the four Founder Societies.

The Council thereupon gave its approval.

Philadelphia Section.—It was reported by the Secretary that this Section was now represented by a chairman only and that a recent attempt to hold a meeting by this Section to take action with reference to the minerals-control bill was not satisfactory, three members only being present. He further stated that Mr. Penrose had suggested the co-operation of the Philadelphia members of the Society with the New York Section rather than to endeavor longer to maintain a separate section in Philadelphia; the advisability for so doing was further emphasized by Mr. Du Bois, who stated that as the Franklin Institute and the Engineers' Club are such active bodies it is most difficult to create interest in any other local scientific organization.

The Secretary recommended that the suggestion of Mr. Penrose be conveyed to the Chairman of the Philadelphia Section and that the advisability of following this suggestion be given consideration by this Section. It was thereupon moved by Mr. Catlin, properly seconded and carried, that the recommendation of the Secretary be carried out.

MINING AND METALLURGICAL SOCIETY OF AMERICA

Membership.—At this point of the meeting the Secretary submitted the usual schedule showing the present standing of the membership.

	Mar. 8	Apr. 18
Membership, January 1, 1918	301	301
Members elected since January 1, 1918	9	9
Total membership	310	310
Members resigned	7	4
Members dropped	0	2
Members deceased	1	1
Total membership	302	303
Applications before Council	0	0
Applications before Members	6	11
Applications before Executive Committee	1	2
Applications in office	3	3
Total	312	319

Discrepancies in the number of resignations are due to the fact that three of those reported on March 8th, are not now actually effective until July 1.

List of Members.—The Secretary announced that the membership roll which is published annually and which this year is to be printed under separate cover is now in galley form. He further stated that although this revised list had been begun immediately following the Council's authorization, some little delay had occurred due to the need of verifying members' addresses, etc.

Referendum.—Thereupon, it was announced by the Secretary that the referendum in the matter of the super-tax on professional incomes had been submitted to the membership on March 13, and that the vote had been polled thirty days thereafter in agreement with the by-laws. He further announced that the count had resulted as given below:

130 votes in favor of petitioning Congress to repeal Section 209.
29 votes against petitioning Congress to repeal Section 209.

159
10 faulty votes.

169 total votes cast.

Mr. W. R. Ingalls, the President, thereupon declared the resolution carried as an act of the Society.

The meeting adjourned at 7 p. m.

LOUIS D. HUNTOON,
Secretary.

EXECUTIVE COMMITTEE.

Meeting of April 25, 1918.

It being impossible to secure at this time a quorum for a Council meeting for the purpose of taking action on the resolution with reference to the Administration of Minerals legislation, adopted by the New York Section at its meeting on April 18, on the morning of April 25, the President, for reasons of weight, called a meeting of the Executive Committee at the Lawyers' Club for noon of the same date. Those present were W. R. Ingalls, Louis D. Huntoon, F. F. Sharpless, and the Assistant Secretary, Edward B. Sturgis.

The Secretary read the resolution of the New York Section noted above, and that of the San Francisco Section adopted on April 16. A motion to refer the resolution of the New York Section to a referendum of the members was also read.

The Secretary then submitted a letter recently received from Dr. Ledoux, questioning the advisability of taking such a referendum. Thereupon, after a very full discussion of this matter from every point of view, the following motion was made, duly seconded and carried:

That the resolution relative to the Administration of Minerals Bill, as adopted by the New York Section on April 18 and as printed here below,

(As the resolution proper appears on page 184 of this issue, it is not here repeated.)

shall be submitted by the Council to the entire membership for letter ballot; that the said letter ballot be issued simultaneously with the Bulletin containing the discussion of the meeting held by the New York Section on April 18; that the Secretary is hereby instructed to publish said bulletin with all possible despatch, and that this bulletin take the place of the regular bulletin which should bear date of May 31, 1918.

The meeting was then adjourned at 2:40 p. m.

LOUIS D. HUNTOON,
Secretary.

MEMBERS ELECTED IN MAY.

Birkinbine, John L. Parkway Bldg., Philadelphia, Pa.
Head of Birkinbine Engineering Offices.
Boyd, W. Sprott.....Ray, Arizona
Supt. of Mines, Ray Cons. Copper Co.
Burbidge, Frederick.....Wallace, Idaho
Gen. Mgr., Federal Mining and Smelting Co.
Newcomb, C. Seymour.....17 Battery Place, New York
Engineer, The Dorr Company.

Rutherford, Forest.....Room 2817, 120 Broadway, New York
 Con. Metallurgical Engineer.
 Smith, H. DeWitt.....Jerome, Arizona
 Supt., Mining Dept., United Verde Copper Co.

CHANGES OF ADDRESS.

Church, J. A., Jr.....154-11th St., Long Island City, New York
 Howe, Ernest.....Litchfield, Conn.

PERSONALS.

George O. Argall, who it will be remembered was present at Yeatman dinner, returned to Colorado early in May.

Francis Drake writes from London, under date of April 19, that he is "working for the Aircraft Production Department of the Ministry of Munitions."

J. P. Hutchins is the author of "Drift Gravel Mining in Eastern Siberia," which appeared in the *Engineering and Mining Journal* for May 11. In the same issue, Hennen Jennings has an article on "The Gold Industry and Gold Standard."

J. F. Kemp is reported to have become president of the Rico Oil Co., of New York; the vice-president of this company is Pope Yeatman.

P. N. Moore appeared recently before the Senate Committee on Mines and Mining in behalf of the minerals administration bill.

R. A. F. Penrose, Jr., has become a director of the Utah Copper Co., vice Eugene Meyer, Jr.

Reno H. Sales gave a discourse on his recent experiences in South America at a meeting of the Montana Society of Engineers, held in April.

J. B. Tyrrell has left Toronto for British Columbia. He is to be absent for some time.

Bulkeley Wells, in the latter part of April, made a visit to Silver City, Colorado.

A. H. Wethey writes from Paris, France, under date of April 12. He does not, however, announce the reason for his temporary change of address.

Rush J. White has been in Montana in connection with the suit of Senator Clark vs. Butte & Superior Co.

Horace V. Winchell has been appointed by J. Parke Channing, Chairman of Engineering Council, a member of a recently authorized Patents Committee.

**MEMBERS OF THE SOCIETY WHO HAVE BEEN
CALLED INTO THE SERVICE OF THE U. S.
GOVERNMENT AND THE ALLIED ARMIES.**

Lawrence Addicks.....Member, U. S. Naval Consulting Board
 Ralph Arnold.....Member, Board of Tax Reviewers
 Percy E. Barbour.....Capt., Reserve List, N. G., N. Y.
 Edwin S. Berry.....Capt., 27th Engineers, O. R. C.
 Alfred H. Brooks.....Capt. of Engineers, O. R. C.
 Reginald W. Brock.....Major of Canadian forces
 Gelasio Caetani.....Capt., 1st Reg. of Engineers, Italian Army
 March Frederick Chase....Expert, National Council of Defence
 Will L. Clark.....Federal Fuel Administrator, Arizona
 J. Morgan Clements....Bur., Foreign and Domestic Commerce
 Welton J. Crook.....Officers' Training Camp
 Benedict Crowell...Major, Eng. O. R. C.; Asst. Secretary of War
 W. B. Devereux, Jr.....Capt., Aviation Section, S. O. R. C.
 J. S. Douglas...Maj. and Dir. Warehouses, American Red Cross
 Francis Drake.....British Aircraft Production Department
 A. S. Dwight.....Major, 1st Res. Engineers, O. R. C.
 Baird Halberstadt..Fed. Fuel Administrator, Schuylkill Co., Pa.
 W. L. Honnold.....Am. Dir., Com. for Relief in Belgium
 Herbert C. Hoover.....U. S. Food Administrator
 John D. Irving.....Capt., 1st Res. Engineers, O. R. C.
 D. C. Jackling.....Dir. U. S. Gov. Explosives Plants
 Donald M. Liddell.....Chief Eng., War Credits Board
 Charles W. McMeekin.....Major of Engineers, O. R. C.
 C. H. Macnutt.....Lt. of Engineers in Canadian forces
 W. W. Mein.....Assistant to the Secretary of Agriculture
 C. W. Merrill....Div. of Chemicals, U. S. Food Administration
 H. G. Moulton.....Engineer, War Industries Board
 Seeley W. Mudd....Maj. and Asst. Dir. U. S. Gov. Expl. Plants
 O. B. Perry.....Lt. Col., 27th Engineers, N. A.
 Joseph Hyde Pratt.....Lt. Col., 105th Engineers, N. A.
 A. L. Queneau.....Late of the French Army
 M. L. Requa.....Chief of Oil Div., U. S. Fuel Administration
 Edgar Rickard.....U. S. Food Administration
 A. P. Rogers.....Materials Dept., Signal Corps
 W. L. Saunders.....Chairman, U. S. Naval Consulting Board
 Millard K. Shaler.....Hon. Sec., Com. for Relief in Belgium
 J. E. Spurr.....U. S. Shipping Board
 S. C. Thomson.....War Export Board
 Arthur L. Walker....Con. Met. to Chief of Ordnance, U. S. A.
 William Young Westervelt..Chairman, War Minerals Committee
 Pope Yeatman.....Con. Engineer, War Industries Board

DIED IN THE SERVICE OF HIS COUNTRY.

William Hague.....January 1, 1918

Mining and Metallurgical Society of America

VOL. XI. No. 6

June 30, 1918

Bul. 121

ANNOUNCEMENTS.

New York Section.—A short notice of the meeting held on May 17 appears on another page. Major Bashford Dean's illustrated remarks on "Alloys and their Significance in the making of Modern Helmets and Body Armor" made this meeting one of the most interesting of the season, but unfortunately these remarks, and the discussion which followed, may not be published in full. As may be inferred from the title of Major Dean's discourse much of what he had to say is confidential and is not therefore printed at his request.

Nevertheless, it may be stated that a portion of Major Dean's remarks dealt specifically with the metals and alloys of which the present day armor and helmets are made, and in this connection the major emphasized the fact that any new ideas with regard to alloys, and with especial reference to their use in the manufacture of armor, would be very welcome. It is therefore suggested that those members who can be of any assistance in this respect should at once communicate with the Secretary.

Council.—At the call of the President, a meeting of the Council was held on May 17, immediately preceding the New York Section meeting of the same date. As provided in the by-laws, the usual ten day notice was waived for reasons of weight. A full report of this meeting is printed elsewhere in this issue.

Government War Service.—Members are requested to give particular attention to the present need of the Engineer Reserve Corps for additional engineer officers, as indicated in the notice printed on page 221. It is perhaps true that all but a comparatively small percentage of the membership are disqualified by age for these commissions; on the other hand, the members can render material assistance by urging the younger engineers, whether members or not, to send in their applications.

Index and Title-Page.—The index, with title-page attached, for the 1917 BULLETIN is ready for distribution. Copies are not

sent to the members except on request, and those, therefore, who contemplate binding the bulletins of last year should notify the Secretary.

Minerals-Control Bill.—In the May issue of the *BULLETIN* it was announced that the legislation for the creation of a minerals administration was, at that time, before the Senate Committee on Mines and Mining. This announcement applies as well to the situation today.

As in the case of the Hearings before the House Committee, many engineers of prominence have appeared to give their opinions as to the advisability of enacting a bill of this character, and to discuss its provisions. Among those who have been present at the Senate Hearings are, W. R. Ingalls, George Otis Smith, and Pope Yeatman, the latter in his capacity as a member of the War Industries Board.

The legislative progress of this measure on "Minerals and Metals for War Purposes," as it is officially designated by the House, has been closely followed by the *Engineering and Mining Journal* under the heading "Industrial News from Washington," and the proceedings before the Senate committee are apparently quite fully covered. It would seem that this committee will be likely to present a minerals-control bill differing materially from that passed by the House, and it may possibly be that the originally proposed appropriation of \$50,000,000 and the price-fixing provisions will again be made a part of the bill.

Under "Communications" will be found certain resolutions, adopted by the Chamber of Mines and Oils of Los Angeles, advocating the creation of a federal department of mines. Attention is here called to this action because it is evidently the direct outcome of the agitation for the appointment, as a war measure, of an administrator of mines.

COMMUNICATIONS.

The Secretary is in receipt of the May issue of the *Mining and Oil Bulletin*, published in Los Angeles by the local Chamber of Mines and Oil. This number covers many matters of interest, and of more than local interest, and two of which assuredly merit the consideration of the members of the Society. In passing, it may be stated that Alvin B. Carpenter is a contributing editor of this publication.

In view of the fact that legislation relative to a war minerals bill is under way, the directors of this chamber believe that the time

is propitious to urge the formation of a U. S. department of mines with a cabinet officer at its head. Thus, at a recent meeting of the directors, the following resolutions were passed, members of Congress, the War Minerals Committee and the American Mining Congress being notified of the action taken:

WHEREAS, There is now before Congress a bill to provide further for the national security and defense by encouraging the production, **conserving** the supply and controlling the distribution of those ores, metals and minerals which have formerly been largely imported, or of which there is or may be an inadequate supply; and

Whereas, The Chamber of Mines and Oil is in full accord with the efforts of the War Minerals Committee to have legislation enacted which will result in the development within the United States of all minerals or ores necessary to the successful prosecution of the war; and especially of those minerals or ores now transported to this country by ocean-going vessels, which will permit the release of this sea tonnage for other purposes; and

Whereas, Existing bureaus or branches of the government service, under which it is proposed to render such proposed legislation effective, are sufficient for the purposes thereof, provided their efforts are co-ordinated under one departmental head; now, therefore,

BE IT RESOLVED, By the board of directors of the Chamber of Mines and Oil, that we do urge upon the Congress of the United States the inadvisability at this time of the creation of the office of mineral director, but we do urge the immediate creation of a Department of Mines, the secretary of which would automatically become director of minerals, charged with the duty of harmonizing, unifying and co-ordinating the activities, duties and powers, of all bureaus, surveys, commissions or other branches of the government, so far as they relate to the development, mining or production of both metallic and non-metallic minerals and ores, and that we do also urge upon Congress the creation of the portfolio of Secretary of Mines.

This same issue of the *Mining and Oil Bulletin* points out that alien enemies might to some extent hinder the production of essential minerals by the purchase, or lease, of deposits containing these minerals. Furthermore, it is stated that agents of the enemy are known to be especially busy in the southwestern states.

Finally, this publication calls on all citizens to at once notify the Army Intelligence Bureau of "any facts indicating enemy ownership or any activity of the enemy's agents in your district in acquiring deposits or properties in regard to which there is any question as to ownership."

From John Wiley and Sons, Inc., now comes the long-awaited "Mining Engineers' Handbook," of which Robert Peele is editor-in-chief. As the pages of the BULLETIN are devoted purely to the proceedings of the Society, no review of this book of nearly 2,400 pages may be permitted.

In addition to that of Professor Peele, the names of the engineers, who as associate editors have assisted in its compilation, will

at once indicate the value of this compact handbook on mining and the allied professions. Something like one-third of these names is also on the member-list of the Society, viz.: Dufourcq, Finlay, Holden, Kemp, McClelland, Norris, Rice, Richards, Sales, Walker, Westervelt and Winchell. In every case, one of these names appears as the author of a distinct section—there are 44 sections in all; the subjects treated may be inferred, at least in a number of instances.

WAR TAX LAW.

As the final step in the matter of the Rogers' resolution anent Section 209, Title II, of the War Excess Profits Tax, the President of the Society forwarded the communication which is printed below to the Honorable Claude Kitchin, Committee on Ways and Means of the House of Representatives, and to the Honorable F. M. Simmons, Committee on Finance of the U. S. Senate. This action was taken by the President as the result of the affirmative vote on the referendum of the membership, as reported to the Council on May 17 and announced in the May BULLETIN. The replies received in acknowledgment are also appended.

May 21, 1918.

Dear Sir:

The members of the Mining and Metallurgical Society of America, by referendum vote of the membership on April 18, 1918, adopted the following resolution:

"The members of the Mining and Metallurgical Society of America respectfully call attention of Congress to the unfairness of the super-tax on professional incomes imposed by section 209 of war revenue act approved October 3, 1917.

"Much might be said in favor of a lower income tax on incomes from professions than upon incomes from investments. But there has been no disposition on part of the mining and metallurgical profession to object to the payment of the same income tax as is paid by others, or indeed to any plan of taxation under which engineers are called upon to bear their fair share of the burden.

"It seems, however, unjust that incomes from the practice of any profession, whether engineering, legal, medical or otherwise, which are the result of personal effort, and which provide not only for the current support of the professional man but also the saving for his old age, should be subject to a heavy super-tax, so that the professional man who works for his income is in a worse position than the idle man receiving his income from invested wealth.

"Therefore the members of the Mining and Metallurgical Society of America respectfully urge that section 209 of the war revenue act be repealed."

In conformity with our duties as officers of the Society, we beg leave to present the above resolution to your attention.

Very respectfully,
LOUIS D. HUNTOON,
Secretary.

W. R. INGALLS,
President.

MINING AND METALLURGICAL SOCIETY OF AMERICA

Walter R. Ingalls, President,
115 Broadway,
New York, N. Y.
My dear Sir:

Washington, D. C., May 24, 1918.

I beg to acknowledge receipt of your letter of May 21st, urging an appeal of Section 209 of the War Revenue Act approved October 3, 1917.

In reply I beg to say that it is not thought expedient at this time to amend the revenue bill, and opportunity for repeal of the section you complain of can only be had when the new revenue bill shall be up for consideration, which will be either at this session or the next session of Congress.

I am placing your letter on file for the information of the Finance Committee when this matter shall be taken up.

Thanking you for your views in respect to this matter, I am,

Yours very truly,

F. M. SIMMONS.

Mr. Walter R. Ingalls, President,
Mining and Metallurgical Society of America,
115 Broadway, New York City.

May 31, 1918.

Dear Sir:

I am in receipt of your letter of the 21st instant, presenting the resolution of the Mining and Metallurgical Society of America, urging the repeal of section 209 of the War Revenue Act.

I have carefully noted the views of your society, with reference to the application of the excess profits tax, and assure you the same shall have the very careful consideration of the Committee.

Yours very truly, CLAUDE KITCHIN,
Chairman.

In reference to the second paragraph of Senator Simmons' letter, it may be observed that, due to the insistence of the Secretary of the Treasury, the new revenue bill is even now under consideration, and it is already quite apparent that many, and some other than professional men, are in accord with the sentiment as expressed by the resolution adopted by the Society.

The press also has emphasized the inequities of the present tax laws, the *New York Evening Post* for May 28, in speaking of the super-tax on professional incomes, states editorially that "such salient injustices as the placing on earned incomes of individuals a heavy additional tax from which unearned incomes were exempted, and doing it under the unworthy subterfuge that 'excess profits' were being taxed, ought to be absolutely eliminated from the new law."

More recently, in the Hearings before the House Committee on Ways and Means, similar opinions have been voiced. Representative Longworth, himself a member of this committee, having been quoted as stating that "it is a fundamental principle of every income tax law in every other country but this that earned income pays a less rate of taxation than unearned income."

OTHER SOCIETIES.

ENGINEERING COUNCIL.

The following preamble and resolutions have been received, under date of May 24, from Engineering Council. As first issued they were addressed to the Secretaries of War and Navy. The subject matter of this address seems of enough importance to warrant printing in its entirety.

CONSERVATION OF TECHNICAL ENGINEERS.

Technical engineers of every branch of the profession who are taking part in the war activities of the Army and Navy are alarmed at the unfortunate waste of technical training caused by the drafting and enlisting of engineers for regular service with little or no regard for their technical attainments. These technically educated and experienced men are essential to the successful conduct of the war and cannot be replaced. There is continuing evidence that America is repeating in some measure England's mistake of sending technical men into the ranks when they should be carefully conserved for special duties in the fighting forces or on the technical staffs of the Army, the Navy and the essential war industries.

These facts have been forced upon the attention of engineers who have been co-operating with the Government through the Naval Consulting Board, the National Research Council and Engineering Council. Upon these organizations requests have constantly been made for engineers, chemists and other technical men for a great variety of military services. Thousands of names have thus been furnished to the Government departments and bureaus. Engineering Council especially has devoted attention to this personnel work through its committee, known as American Engineering Service, which has available classified lists of approximately 25,000 engineers, and besides unclassified lists of many more. It is from these lists, directly or indirectly, that most of the names have been selected for war service.

Engineering Council was founded by the American Society of Civil Engineers, American Institute of Mining Engineers, American Society of Mechanical Engineers and American Institute of Electrical Engineers and other engineering societies are co-operating with it in this service, the total membership represented by these organizations being approximately fifty thousand. Already from 10 to 15 per cent of the members of these several organizations are in the uniformed services of the country and it is safe to say that a large majority of their remaining members are in the Government civilian service or otherwise directly or indirectly engaged in the War. Engineers do not seek to avoid fighting, but earnestly desire to be given opportunities for fighting and other services in which they can be most effective and which cannot be performed by others.

It is known that through the Committee on Classification of Personnel in the War Service Exchange (of the War Department) and some other ways, efforts are being made to counteract the tendencies toward the loss of our technical men in the ranks of the Army and Navy. It is believed, however, that these efforts are insufficient and that they should at once be supplemented by other stringent measures dealing with the subject in the Draft Boards and recruiting stations.

In view of the foregoing, Engineering Council, created to provide means for united action and to speak authoritatively for its member societies on

all public questions of common interest to engineers, respectfully offers the following:

WHEREAS, technically trained engineers are indispensable to the Army, the Navy and the war industries, in engineering corps, ordnance bureaus and signal corps, in aviation, submarine and tank service, in shipbuilding, and in many other assignments; and

WHEREAS, through draft and otherwise many of these ir-replaceable men have been and are being diverted so that their special qualifications are not being utilized, be it

RESOLVED, that in the opinion of Engineering Council technically trained men of all ages should be enrolled and conserved for technical duties and special efforts should be made immediately by the War and Navy Departments to find and record such men among drafted and enlisted forces and to assign them to places in which their special qualifications are needed, and be it further

RESOLVED, that Engineering Council offers to assist the War and Navy Departments in locating and classifying such men, if its assistance be desired, provided these departments will give the necessary facilities for collecting information about engineers now in the Army and Navy, or whose names are upon the selective draft lists.

These resolutions are offered solely in a patriotic spirit of helpfulness.

Respectfully,

ALFRED D. FLINN,
Secretary.

War Committee of Technical Societies.—C. R. Corning, one of the representatives from the Society on the War Committee of Technical Societies, makes the following report as of June 15:

Mr. Storrs, the Secretary, has been obliged to relinquish his connection as an officer of the Committee on account of private business and the Committee is looking for a gentleman whose time and means will permit his undertaking this work.

Difficulties have been encountered in the publishing of bulletins because of red tape conditions which stood in the way but improvement in this line is noticed. One bulletin is in print and another is ready for the printer.

The Army has made arrangements whereby problems arising at the front can be promptly brought back to this country and placed in the way of solution. The Committee therefore desires to effect an extension in its organization, one plan being suggested that each Society now represented should name from its members a Sub-committee of which the present representatives on the War Committee should be members.

Co-operation with the American and English military forces has been secured by the assignment to the Committee of one officer each of these services.

One of the most important questions now before the Committee is that of increasing the capacity of the American Armies for doing engineering constructing work at the front.

With reference to the third paragraph of this report, it should be noted that D. W. Brunton, Chairman of the W. C. T. S., has been selected to head an advisory board of a recently organized war

inventions section of the War Department; this board is under the immediate jurisdiction of the general staff corps.

American Engineering Service.—Beginning with May 27, the American Engineering Service will hold, until further notice, regular weekly meetings on Mondays. This was deemed imperative because of the ever-increasing work which has been entailed by the demand of the Government, and especially the War Department, for engineers of all kinds. In this connection, it may also be noted that a sub-committee comprised of a member from the classification staff of each founder society has been organized with W. V. Brown, General Assistant to the American Engineering Service, as Chairman. This auxiliary committee has under continual consideration details of classification and filing and, from time to time, makes suggestions to the main body as to possible improvements to the questionnaire in use.

Changes in the personnel of the American Engineering Service must again be announced. The vacancy caused by the resignation of Mr. Alfred D. Flinn, who on January 1 became Secretary of Engineering Council, has been filled by the appointment of John P. H. Perry, representing the American Society of Civil Engineers. Dr. Addams S. McAllister, who so loyally served the American Engineering Service for so many months as Secretary, resigned from the A. E. S. early in May in order to accept a position in the Control Bureau of the Ordnance Department in Washington; as his successor Mr. Channing, Chairman of Engineering Council, at the instance of the American Institute of Electrical Engineers, appointed William A. Del Mar. At the same time, Mr. Channing also appointed W. Herman Greul as an auxiliary member; it should be added that Mr. Greul is a member of the American Society of Mechanical Engineers and was at one time closely associated with the classification of engineers carried on individually by this Society.

In the April BULLETIN it was pointed out that the War Service Exchange, located in Washington, was endeavoring to centralize the personnel requirements of the many branches of the War Department, and even of other departments, in such a way as to facilitate the filling of Government needs for men. It may now be reported that this plan has gone a long way toward consummation, and, in order to give close co-operation, the American Engineering Service is making arrangements by which the War Service Exchange will be met half way.

In passing, it may be of interest to the members of the M. and M. Society to know that altogether something like 3,000 names of engineers have been forwarded to the Government to meet its many

and various requisitions. At this date, an average of 70 names are being supplied weekly to the Government.

As announced in the newspapers early in June, the Chief of Engineers, U. S. Army, has issued a call for engineers qualified under the specifications for commissions in the Engineer Reserve Corps. Similar announcement was sent by letter to the American Engineering Service, and the notice which here appears, following closely the wording of the original, was prepared by the A. E. S. for publicity purposes.

Approximately 2,000 engineer officers are required immediately for the Army, and, to obtain them with a minimum of delay, a board of examining officers will be sent from Washington for the purpose of visiting many of the principal cities of the United States to examine members of the engineering profession who may desire to serve their country in the present emergency.

The Examining Board will only receive applications for appointment in the grades of first lieutenant and captain, and only those applicants meeting the following requirements will be considered, viz.:

Age limits: For the grade of first lieutenant—32 to 36 years; for captain—36 to 42. These limits may be slightly increased or decreased in special cases, except that no one who is within the draft age will be considered.

Applicants must be engaged in the active practice of the engineering profession, in one of its various branches, and be in good physical condition.

Professional qualifications and experience: No set rules have been established. An applicant's fitness for commission will be determined by the Examining Board.

All applicants must be citizens of the United States.

No applications will be received from any one now in Government Service.

Applications will not be received from any one born in a country with which the United States is at war, or born in a country allied with a country with which the United States is at war, even though he be a naturalized citizen of this country.

All applicants accepted by the Examining Board will be commissioned within ten days or two weeks, and within a few days thereafter, will receive orders to report at an Engineer Officers' Training Camp, either at Camp Lee, Petersburg, Virginia, or at Camp Humphreys, Virginia, near Washington, where they will be given a course in military training previous to being assigned to duty with Engineer Troops.

Applicants must understand, however, that it is required of an Engineer Officer that he not only be professionally qualified, but must also possess the requisite qualities of leadership and temperament to fit him for the command of troops.

The Government will allow traveling expenses at the rate of seven cents per mile to applicants who may be commissioned, and they will also receive, while in the training camp, the regular pay of an officer of their rank.

Members of the Society, or others, who desire to apply for these commissions in the Engineer Reserve Corps, and who are in every way able to meet the specifications indicated above, are re-

quested to at once notify the Secretary of the Society. Applicants will thereupon receive official application and experience blanks, together with proper instructions.

CANADIAN MINING INSTITUTE.

At the annual meeting of the C. M. I., held early in March, one of the subjects under discussion was entitled "Technical Organizations and the Government," and, in the course of the opening address on this topic, the need of co-operation among engineers "to aid and advise in the conduct of public affairs" was emphasized. To this end, it was suggested that a Central Technical Committee for Re-Construction, with sub-committees, should be organized, to consist of representatives from the different Canadian scientific and industrial bodies.

It is fairly apparent that this proposed Central Committee would be in many ways analogous to our own Engineering Council, although its complete designation would lead one to believe that its activities would endure for only so long after the termination of the war as would be essential to reconstruct and to stabilize industrial affairs.

MEETINGS OF SECTIONS.

NEW YORK SECTION.

Meeting of May 17, 1918.

A meeting of the New York Section was held on May 17, 1918, at the Columbia University Club, the customary informal dinner preceding. The guest of the Section, and the principal speaker, was Major Bashford Dean, Ord. R. C., who in civil life is curator of arms and armor for the Metropolitan Museum of Art, New York, and is one of the very few American authorities on these subjects.

The title of his discourse "Alloys and their Significance in the making of Modern Helmets and Body Armor" gives only a faint inkling of the ground covered, for Major Dean entertained the meeting with a historical and technical account of armor, from the beginning of the middle ages to date, illustrating his remarks by lantern slides. On reaching very modern times, much of what Major Dean had to say related to the material of which armor is made.

It is to be regretted that, for very obvious reasons, no verbatim report of Major Dean's talk may be published and furthermore, as

this was the nucleus of the evening's discussion, it seems but fitting that the remarks of the other speakers should also be omitted. Professor Campbell and Messrs. Mathews, Stoughton and Kirby contributed much that was of value, largely with reference to the metals and alloys employed in the present day manufacture of armor.

In accepting the invitation to speak before the Section, Major Dean wrote that he expected to obtain more information than he could impart, and at the conclusion of his address he emphatically requested that those who could throw any light on the making of armor, and in particular on the material of which armor might be made, should step forward.

The following named members attended this most highly interesting meeting: S. H. Ball, J. A. Church, Jr., C. R. Corning, R. W. Deacon, J. V. N. Dorr, A. E. Drucker, Fred Hellmann, Louis D. Huntoon, J. P. Hutchins, W. R. Ingalls, E. B. Kirby, H. H. Knox, Robert Linton, John W. Mercer, Robert Peele, Francis R. Pyne, Forest Rutherford, F. F. Sharpless, Bradley Stoughton, Otto Sussman, Wm. Young Westervelt and Ralph B. Williams.

In addition to Major Bashford Dean, these guests were present: Charles S. Ackley, A. F. Braid, William Campbell, F. F. Colcord, Bernard Cunniff, W. H. Grant, Wm. D. Hoerr, T. N. Mather, J. A. Mathews, B. P. Phillipson, Max Roesler, Sidney Rolle, Edward B. Sturgis, Leonard Waldo and A. P. Watt. There were also three officers of the French army present whose names are omitted by request.

Mr. Knox, Chairman of the New York Section, presided at the meeting.

F. F. SHARPLESS,
Section Secretary.

COUNCIL.

Meeting of May 17, 1918.

A Council meeting, called by the President, was held at the Columbia University Club on May 17, 1918, at 5:45 p. m., and immediately preceding the meeting of the New York Section which took place on the same evening. The usual ten-day notice as required by the by-laws was waived in this instance for reasons of weight. Mr. Ingalls, the President, was in the chair, and other Councillors attending were Messrs. Dorr, Huntoon, Kirby, Penrose and Sharpless.

Income Tax Referendum.—The attention of the meeting was called by the Secretary to the fact that, although the vote on

the Rogers' resolution with reference to the super-tax on professional incomes had been reported and had been declared an act of the Society by the President, nothing further had been done in the matter. The Secretary also stated that he had consulted Counsel and had been informed by them that Mr. Claude Kitchin, Chairman of the Committee on Ways and Means, of the House of Representatives, was the proper official to notify as to the action of the Society in this case. The President, however, ruled that this was merely a routine matter and would be handled by the officers of the Society.

Minerals Administration.—For the information of the meeting, the Secretary brought to its attention the action of the Executive Committee, at its meeting on April 25, in the matter of a referendum of the entire membership on the resolution adopted by the New York Section relative to the minerals-control legislation. This action was to the effect that said resolution should be submitted to the members for letter ballot and that it should be sent out simultaneously with a bulletin containing the minutes of the meeting held by the New York Section on April 18. The Secretary thereupon submitted draft of referendum which after considerable discussion, and amendment, was approved by the meeting as follows:

At a meeting of the Executive Committee held on April 25, it was voted to submit to a referendum of the Society a resolution adopted by the New York Section, at a meeting on April 18. The measure referred to in this resolution has been discussed by the San Francisco and New York Sections; minutes of these discussions, and of others, are mailed simultaneously in the May BULLETIN. The resolution upon which vote is to be taken is as follows:

"Recognizing the extreme importance of the Minerals Administration Bill now before Congress, the President of the Mining and Metallurgical Society of America, on March 16, 1918, duly called a Special Meeting to be held in New York on April 18 for the purpose of discussing this Bill and eliciting the opinion of the members. This meeting having been duly held, a meeting of the New York Section, having been properly called, was convened immediately thereafter, and the following resolution offered:

RESOLVED, that it is the sense of this meeting that the general principles of this Bill tend to further the efficiency of the Government in prosecuting the war while safeguarding the welfare of the mineral industry and that this or a similar bill should be made a law, provided, however, that the products covered by said bill as passed shall include only such minerals and metals as are really required for war emergency needs as are those specifically enumerated on page two of draft before this meeting; viz., H. R. 11259."

The minerals alluded to are as follows: "Antimony, arsenic, ball clay, bismuth, bromine, cerium, chalk, chromium, cobalt, corundum, emery, fluor-spar, ferro-silicon, fullers earth, graphite, grinding pebbles, iridium, kaolin,

magnesite, manganese, mercury, mica, molybdenum, osmium, sea salt, platinum, palladium, paper clay, potassium, pyrites, radium, sulphur, thorium, tin, titanium, tungsten, uranium, vanadium, zirconium."

New Members.—Announcement was made that ballot No. 75 had been polled on May 7, and that the candidates for election received a unanimous vote except in one case in which the vote stood 14 to 1. The Secretary reported that the following had therefore been notified of their election: John L. W. Birkinbine, W. Sprott Boyd, Frederick Burbidge, C. Seymour Newcomb, Forest Rutherford and H. DeWitt Smith. The Secretary made the further announcement that ballot No. 76, carrying the names of seven applicants to membership in the Society, had been mailed to the membership with the April BULLETIN.

Annual Medal.—According to the Rules, the specific object for which the gold medal is to be awarded must be decided upon six months prior to the annual meeting, that is to say on or about July 1. The Secretary therefore called the meeting's attention to this fact and requested action. In the discussion which followed, the President made the suggestion that the award for the 1919 medal might be made for conspicuous war service, and the following titles were tentatively proposed:

"Distinguished Service in the Advancement of the Science of Mining (or Metallurgy) in its Relation to the War,"

"Distinguished Service in Military Mining,"

"Distinguished Service in Military Metallurgy."

A motion was then passed that a letter be sent to all of the Councillors with the request for suggestions as to the specific object for which the medal should be awarded.

Appropriation Bills.—At this point of the meeting, Mr. Sharpless stated that he had received communication from Mr. Corning with regard to a report issued by the New York Board of Trade and Transportation in the matter of Army and Navy appropriation bills now before Congress, and with especial reference to the provision prohibiting the payment of cash rewards to employees in Government undertakings; this report being entitled "Shall War Efficiency be Limited?" In this connection, the Secretary then announced that the May BULLETIN would contain some part of a memorandum received from Engineering Council which had a direct bearing on this matter; he furthermore stated that the resolution, which was passed by the Engineering Council in condemnation of this pending Congressional action, would also appear in this BULLETIN.

The meeting thereupon directed the Secretary to publish a para-

graph, in addition to what had already been written on this matter, urging individual members of the Society to express their opinions to their Congressmen regarding this provision restricting the payment of bonuses to employees, and to furthermore request the members that they should call on their friends to do likewise. The Secretary was also instructed to advise Mr. Corning what was being done in the matter.

The meeting adjourned at 7 p. m.

LOUIS D. HUNTOON,
Secretary.

CHANGES OF ADDRESS.

Alsdorf, F. C. Hotel Somerset, New York
Keene (Kuehn), A. F. Hotel Robert Fulton, New York
Sanders, R. H. 617 Drexel Bldg., Philadelphia, Pa.
Wilmot, H. C. Prescott, Ariz.

PERSONALS.

W. H. Aldridge's name appears in the *Mining and Engineering Record* for February 28, only recently received at this office, in connection with an editorial on the "Consolidated Mining and Smelting Co. of Canada, Ltd." One paragraph of this article reads:

The industries carried on by the Consolidated Mining and Smelting Company form an enterprise of which Canada may well be proud. The Company is the only metallurgical enterprise in the world refining five metals—gold, silver, copper, lead and zinc by hydro-electric power. It was the first company in Canada to produce refined lead, zinc and copper. Its business was successfully organized by W. H. Aldridge, who gathered around him a body of mine managers and metallurgists unequalled on the continent. On his leaving the service of the Consolidated Mining and Smelting Company he took with him some of these men to place in charge of his American enterprises, but those he left behind him carried on the work and did it well.

Alvin B. Carpenter is one of the contributing editors of the *Mining and Oil Bulletin* published by the Los Angeles Chamber of Mines and Oil.

R. M. Catlin is the recipient of the honorary degree of Doctor of Science from Rutgers College, at its recent commencement. This degree was conferred on Mr. Catlin "in recognition of his high attainments in science, his expert knowledge in the field of his profession, his notable engineering work in this country and in South Africa and in other parts of the world, and his present great use-

fulness in the oversight of a great mining industry of New Jersey and the nation."

Louis D. Huntoon and C. O. Lindberg have recently been appointed to the technical staff of the U. S. Bureau of Mines to assist in the many problems which have arisen in connection with minerals for war purposes.

D. C. Jackling was in Salt Lake City some little time ago, stopping off on his way to Washington.

J. H. Janeway and F. T. Rubidge were present at a meeting of the Chemical Alliance, held early in June. According to the public press, resolutions were adopted pledging this organization's co-operation with the War Industries Board in reference to the allocation of sulphur and pyrite.

Hennen Jennings, at the annual commencement of Harvard University on June 20th, received the degree of Master of Arts.

J. E. Johnson, Jr.'s, name appears on the title-page of a treatise on "The Principles, Operation and Products of the Blast Furnace," published recently by the McGraw-Hill Book Co. One short critique of this book states that it, together with "Blast Furnace Construction in America" by the same author, gives a fairly complete review of pig-iron production.

J. F. Kemp left Oklahoma on June 6 and expects to be in New York sometime in July.

A. F. Kuehn has formally announced that, dating from June 20, his name has been changed by legal process to A. F. Keene.

J. Volney Lewis reports that he will devote a considerable portion of the summer in the Southern Appalachians on professional work.

Donald M. Liddell, who has been associated with the War Credits Board as chief engineer, is now a captain in the Aviation Section, Signal Reserve Corps. He writes that he is district manager of inspection for the New York district for the Bureau of Aircraft Production.

Waldemar Lindgren, H. Foster Bain and C. M. Weld were present at the New York Section meeting of the A. I. M. E. held on May 23. This meeting was devoted to the discussion of the resources of iron ore, with especial reference to post-war conditions.

Halstead Lindsley, Major, Ord. R. C., is at the present time in England on official military service.

William A. Pomeroy, who reached this city from Los Angeles in the middle of May, expects to return to the Pacific Coast on June 28.

Frank H. Probert, Professor of Mining, University of California, has become dean of the College of Mining. During the summer months, Professor Probert will be associated with the U. S. Bureau of Mines.

Raphael Pumpelly is the author of "My Reminiscences" published by Henry Holt & Co. As one reviewer puts it, this "engineer, explorer, ethnographer, archaeologist and philosopher, sums his whole octogenarian melodrama in two volumes of the most exciting, amusing and enchainning narrative of recent years."

A. L. Queneau writes for the *Bulletin* of the A. I. M. E. his experiences in connection with the world-war, beginning with August 1, 1914. He was at the front and received both the British Distinguished Service Medal and the French Croix de Guerre. He became successively, corporal, sergeant and officer interpreter, and was later requisitioned by the British Ministry of Munitions "to act in an advisory capacity in regard to lead and zinc smelting." Mr. Queneau now hopes to become liaison officer attached to the American Expeditionary Force.

Allen H. Rogers has been elected chairman for 1918 of the New York Section, A. I. M. E. Among other officers elected are Forest Rutherford as one of the vice-chairmen and F. T. Rubidge, Treasurer. J. E. Johnson, Jr., and E. Gybbon Spilsbury are the new members of the executive committee.

Forest Rutherford has received an appointment to the Non-Ferrous Metals Department of the U. S. Tariff Commission.

W. J. Sharwood has written an article with "Sodium vs. Potassium Cyanide" for title. An excerpt from this article is printed in the *Engineering and Mining Journal* for May 18.

George Otis Smith, Director of the U. S. Geological Survey, describes for the *Mining and Oil Bulletin* the activities of his bureau in "Signposting Desert Watering Places of Southwest." The article is illustrated and covers map showing work accomplished.

H. De Witt Smith tells in the *Engineering and Mining Journal* for May 25 of the method followed in obtaining maximum co-operation among the employees of the United Verde mine in behalf of W. S. S. and the Third Liberty Loan.

Morril B. Spaulding has received the appointment of Assistant Plant Engineer of the Chester Shipbuilding Co., Chester, Pennsylvania.

C. M. Weld, who was in Canada during the latter part of May, returned to New York only to leave almost at once for a two weeks' trip to Tennessee beginning with June 1.

Bulkeley Wells is managing director of the Anna Beaver Co. of the Joplin District in Oklahoma.

O. R. Whitaker has accepted appointment under the Canadian government to a commission for the investigation of new rates adopted by the Trail smelter. It is understood that Mr. Whitaker will act in an independent capacity.

H. C. Wilmot, who recently returned from a professional trip to Arizona and New Mexico, is to be located in Prescott, Arizona, for the next few months.

Pope Yeatman announces that he is now connected with the War Industries Board as Chief of the Non-Ferrous Metals Section.

Geo. J. Young is the author of an article devoted to the saline deposits of Death Valley, California, under the title "The Sink of the Amargosa," appearing in the *Engineering and Mining Journal* for June 1.

MEMBERS OF THE SOCIETY WHO HAVE BEEN CALLED INTO THE SERVICE OF THE U. S. GOVERNMENT AND THE ALLIED ARMIES.

Lawrence Addicks.....Member, U. S. Naval Consulting Board
 Ralph Arnold.....Member, Board of Tax Reviewers
 Percy E. Barbour.....Capt., Reserve List, N. G., N. Y.
 Edwin S. Berry.....Capt., 27th Engineers, O. R. C.
 Alfred H. Brooks.....Capt. of Engineers, O. R. C.
 Reginald W. Brock.....Major of Canadian forces
 Gelasio Caetani.....Capt., 1st Reg. of Engineers, Italian Army
 March Frederick Chase....Expert, National Council of Defence
 Will L. Clark.....Federal Fuel Administrator, Arizona
 J. Morgan Clements....Bur., Foreign and Domestic Commerce
 Welton J. Crook.....Officers' Training Camp
 Benedict Crowell..Major, Eng. O. R. C.; Asst. Secretary of War
 W. B. Devereux, Jr.....Capt., Aviation Section, S. O. R. C.
 J. S. Douglas...Maj. and Dir. Warehouses, American Red Cross
 Francis Drake.....British Aircraft Production Department
 A. S. Dwight.....Major, 1st Res. Engineers, O. R. C.
 Baird Halberstadt..Fed. Fuel Administrator, Schuylkill Co., Pa.
 W. L. Honnold.....Am. Dir., Com. for Relief in Belgium
 Herbert C. Hoover.....U. S. Food Administrator

John D. Irving.....Capt., 1st Res. Engineers, O. R. C.
 D. C. Jackling.....Dir., U. S. Explosives Plants
 Donald M. Liddell.....Capt., Aviation Section, Sig. R. C.
 Halstead Lindsley.....Major, Ordnance R. C.
 Charles W. McMeekin.....Major of Engineers, O. R. C.
 C. H. Macnutt.....Lt. of Engineers in Canadian forces
 W. W. Mein.....Assistant to the Secretary of Agriculture
 C. W. Merrill....Div. of Chemicals, U. S. Food Administration
 H. G. Moulton.....Engineer, War Industries Board
 Seeley W. Mudd.....Maj. and Asst. Dir., U. S. Explosives Plants
 O. B. Perry.....Lt. Col., 27th Engineers, N. A.
 Joseph Hyde Pratt.....Lt. Col., 105th Engineers, N. A.
 A. L. Queneau.....Late of the French Army
 M. L. Requa.....Chief of Oil Div., U. S. Fuel Administration
 Edgar Rickard.....U. S. Food Administration
 A. P. Rogers.....Materials Dept., Signal Corps
 W. L. Saunders.....Chairman, U. S. Naval Consulting Board
 Millard K. Shaler.....Hon. Sec., Com. for Relief in Belgium
 J. E. Spurr.....U. S. Shipping Board
 S. C. Thomson.....War Export Board
 Arthur L. Walker....Con. Met. to Chief of Ordnance, U. S. A.
 William Young Westervelt..Chairman, War Minerals Committee
 Pope Yeatman.....Chief, Non-Ferrous Metals Sec., War Ind. Brd.

DIED IN THE SERVICE OF HIS COUNTRY.

William HagueJanuary 1, 1918

Mining and Metallurgical Society of America

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Bul. 122

ANNOUNCEMENTS.

Council.—A meeting of the Council was held at the Columbia University Club, New York, on July 9, 1918. The principal business before the meeting was the designation of the object for which the gold medal for 1919 shall be awarded. A detailed report of this meeting is printed on another page of this issue.

Minerals-Control Bill.—The result of the referendum of the membership on the resolution adopted by the New York Section in the matter of the "Proposed Creation of an Administration of Minerals" is reported in this number of the BULLETIN.

Gold Medal.—As required by the by-laws, the Council at its meeting of July 9, determined that the recipient of the gold medal, to be announced at the annual meeting of 1919, should be distinguished in the metallurgy of iron and steel. This decision was reached only after mature consideration had been given to the matter by two consecutive meetings of the Council. In the interim, all Councillors at a distance were consulted by letter. The proceedings in detail leading up to this action appear under the reports of the Council meetings in the current and June BULLETINS.

Mr. W. R. Ingalls, the President, under date of July 17, appointed the following on the Gold Medal Committee: E. Gybbon Spilsbury, Chairman, J. E. Johnson, Jr., and Bradley Stoughton. Upon this committee devolves the final selection of the nominees from whom the recipient of the medal is chosen by the Council.

U. S. Bulletin.—Under "Communications" appears a short announcement, issued by the Committee on Public Information in Washington, with reference to *The Official U. S. Bulletin* and some of the purposes for which it is published. Members are requested to read this notice.

U. S. Fuel Administration.—Attention of the members is called to a circular letter, printed elsewhere in this issue, from the Oil Division of the Fuel Administration urging the necessity for the

conservation of gasoline and oils of various kinds. Copies of this letter have also been sent from this office under Government frank.

The same division of the Fuel Administration calls on the Society for assistance in filling its requirements for combustion engineers to act as inspectors of plants using oil and natural gas for power purposes.

These inspectors, who must actually have had experience in oil and gas combustion, are to act locally at their point of business or residence. Such inspectors are needed in Boston, Buffalo, Chicago, Detroit, Minneapolis, New Orleans, New York, Philadelphia, Pittsburgh, Providence, San Francisco and Tulsa.

It is hoped that volunteers will be found to undertake this work, but the Fuel Administration is prepared to pay a reasonable compensation to those who are unable to give their services to the Government.

Bound Volumes.—The bound volumes of the 1917 BULLETIN were sent out on July 3 to the members ordering them. As by far the larger number were forwarded by a national express company, receipts from the consignees are not made available to this office, and the Secretary will be pleased to receive notice in any case of non-delivery. Notice to this effect has also been mailed to the individual members.

A very few extra copies of this bound volume are on hand, and may be secured if ordered promptly.

ADMINISTRATION OF MINERALS REFERENDUM.

The referendum on the resolution relative to the "Proposed Creation of an Administration of Minerals" was counted on July 1 by the tellers under appointment of the President. Their report follows:

Mr. W. R. Ingalls, *President*,
Mining and Metallurgical Society of America,
10th Avenue and 36th Street,
New York City, N. Y.

July 1, 1918.

My dear Sir:—

We, the undersigned, beg to report that the vote taken upon the referendum concerning the proposed creation of a law on the Administration of Minerals is as follows:

In favor of the law.....	182
Opposed to the law.....	6

In addition there were five unsigned ballots and one blank vote.

Respectfully submitted, A. C. LUDLUM,
S. H. BALL, *Tellers.*

As the final step in the procedure, the President on July 9, at a meeting of the Council, announced that the resolution had been carried and was a formal act of the Society. Later, the President forwarded to the Secretary his official declaration, as follows:

Ballot on the following resolution, approved by the Council, was submitted to the membership on May 31, 1918:

RESOLVED, that it is the sense of this meeting that the general principles of this Bill tend to further the efficiency of the Government in prosecuting the war while safeguarding the welfare of the mineral industry and that this or a similar bill should be made a law, provided, however, that the products covered by said Bill as passed shall include only such minerals and metals as are really required for war emergency needs as are those specifically enumerated on page two of draft before this meeting; viz., H. R. 11259."

The minerals alluded to are as follows: "Antimony, arsenic, ball clay, bismuth, bromine, cerium, chalk, chromium, cobalt, corundum, emery, fluorspar, ferro-silicon, fuller's earth, graphite, grinding pebbles, iridium, kaolin, magnesite, manganese, mercury, mica, molybdenum, osmium, sea salt, platinum, palladium, paper clay, potassium, pyrites, radium, sulphur, thorium, tin, titanium, tungsten, uranium, vanadium, zirconium."

Ballots were counted on July 1, 1918, by tellers appointed by the President. All procedure having been in conformity with the by-laws of the Society, and the tellers having reported 182 votes cast in the affirmative and 6 in the negative, I declare the resolution to have been carried and to be an act of the Society.

W. R. INGALLS,
President.

July 2, 1918.

COMMUNICATIONS.

U. S. Bulletin.—The Secretary is in receipt of the following letter from E. S. Rochester, editor of *The Official U. S. Bulletin*, the official organ of the Committee on Public Information:

July 15, 1918.

Secretary, Mining and Metallurgical Society of America,
New York City.

My Dear Sir:

I am taking the liberty of sending you a brief notice regarding *The Official U. S. Bulletin* which I hope you may be able to use in the immediate future. Everything possible must be done at this time to relieve the governmental departments at Washington of the enormous amount of work imposed upon them since our entry into the world war. The notice I am sending you is self explanatory, and I feel that much good will be done the government if this matter is given the widest publicity possible.

Please do not hesitate to call on us if we can serve you.

Very sincerely yours,

E. S. ROCHESTER,
Editor.

The notice for which publicity is requested is printed below and, as stated by Mr. Rochester, tells its own story:

Owing to the enormous increase of government war work, the governmental departments at Washington are being flooded with letters of inquiry on every conceivable subject concerning the war, and it has been found a physical impossibility for the clerks, though they number an army in themselves now, to give many of these letters proper attention and reply. There is published daily at Washington, under authority of and by direction of the President, a government newspaper—The Official U. S. Bulletin. This newspaper prints every day all the more important rulings, decisions, regulations, proclamations, orders, etc., etc., as they are promulgated by the several departments and the many special committees and agencies now in operation at the National Capital. This official journal is posted daily in every post-office in the United States, more than 56,000 in number, and may also be found on file at all libraries, boards of trade and chambers of commerce, the offices of mayors, governors, and other federal officials. By consulting these files, most questions will be found readily answered; there will be little necessity for letter writing; the unnecessary congestion of the mails will be appreciably relieved; the railroads will be called upon to move fewer correspondence sacks, and the mass of business that is piling up in the government departments will be eased considerably. Hundreds of clerks, now answering correspondence, will be enabled to give their time to essentially important work, and a fundamentally patriotic service will have been performed by the public.

U. S. Fuel Administration.—W. Champlain Robinson, who is Director of Oil Conservation of the Oil Division, United States Fuel Administration, under date of July 12, sends this office the circular letter which follows:

Dear Sir, "Save Oil":

The conservation of fuel oil, gasoline, kerosene, and lubricating oils is necessary, otherwise a shortage in their supply may result.

The Oil Division of the Fuel Administration desires to bring this fact to your attention and to ask your aid in stopping the waste of oil in all forms.

Realizing much oil, of various kinds and used for numerous purposes, comes under the direction of many of your members, I ask that copies of this letter be placed in the hands of each. (I shall be glad to send you sufficient copies, if you will state the number needed.)

By way of making a start, I suggest that each member carefully inspect the plant with which he is connected, and if any oil is found on the ground, floors, or engine beds, etc., to issue instructions to the operators to have the waste stopped. "It is the drops that count!"

Any aid that this Section can give to further their efforts to conserve oils, will be gladly forthcoming. I invite your correspondence.

Asking for your prompt and hearty co-operation,

Yours truly, "Save Oil,"

UNITED STATES FUEL ADMINISTRATION, OIL DIVISION,

By W. CHAMPLAIN ROBINSON,
Director of Oil Conservation.

As per the suggestion contained in this letter, in the event that any member desires to assist in the campaign, this office will be very glad to secure and forward copies of the letter for wider distribution.

Crippled American Soldiers.—Beginning with June of this year, the office of the Surgeon General, U. S. Army, in conjunction with the American Red Cross, will publish "A Magazine on the Reconstruction of Disabled Soldiers and Sailors." This is the subtitle of *Carry On*, the initial number of which recently reached this office bearing the following message from General Gorgas:

The Medical Department of the Army will "CARRY ON" in the medical and training treatment of the disabled soldier until he is cured or as nearly cured as his disabilities permit. We shall try to do our part in his restoration to health efficiently, with the belief that the wounded and sick soldier shall have the opportunity to return to civil life capable of pursuing a career of usefulness. This will enable him to enjoy the freedom and happiness afforded by world wide democracy for which he has given his all.

This first issue of *Carry On* is quite unusually attractive both in outward appearance and in its general make-up. The illustrations are numerous and the articles thoroughly worth while, their general tone emphasizing the fact that opportunity and not charity is the basis of this movement for the rehabilitation of the sick and wounded.

OTHER SOCIETIES.

ENGINEERING COUNCIL.

In the middle of June, there was issued from the headquarters of the Engineering Council, a notice that volunteers for committee work would be acceptable. In other words, as the activities of the standing committees, a number of which have been organized for war purposes, increase, assistance in many different ways will become more and more desirable. Engineers prepared to devote any part of their time to this service are requested to communicate with the secretary, Alfred D. Flinn, 29 West 39th St., New York. It may be pointed out that here is an opportunity for the engineers who are well past the middle age.

Among the "News Notes about Engineering Council," issued on June 24, appears the following:

At the regular meeting of Engineering Council, June 20, a special report by the Public Affairs Committee on the Licensing of Engineers, was debated at length. It was decided to create a small Special Committee, with very carefully selected membership, to study this important question thoroughly with a country-wide view. It is intended that through the work of this committee, Engineering Council shall in due time be prepared to advise engineering organizations in any of the states upon this much discussed matter. Engineers who have knowledge of proposed legislation are requested to communicate with the Secretary of Engineering Council. Information or rumor has already been received of possible action by the Legislatures of Iowa, Ohio, Indiana and Michigan. As is well known, a few states have passed laws.

American Engineering Service.—In connection with the requisition of the Chief of Engineers, U. S. Army, for 2000 engineer officers, the A. E. S. prepared the way for the examining board when on duty in New York on July 3, 5 and 6. Rooms for its use were set aside in the United Societies Building and arrangements were made with the Metropolitan Life Insurance Co. for space in which to carry on the physical examination of the applicants. On or about August first, the examining board will have returned to this city to complete its work in the immediate district.

Administrative Engineers to work in association with the U. S. Fuel Administrators are being appointed for the different states, and the A. E. S. has been requested to help in locating qualified engineers for these positions. Furthermore, Edward N. Trump, the Administrative Engineer for New York State, was present on July 15 at a joint meeting of the A. E. S. and the Secretaries of the founder societies to ask for assistance in obtaining a corps of volunteers as inspectors of power plants throughout the state. It is hoped that after proper ratings have been given, regular inspections of power plants by combustion engineers will, by the introduction of improved methods, make for a saving in fuel.

War Committee of Technical Societies.—This committee, in conjunction with the Naval Consulting Board, has recently issued its Bulletin No. 2 on "The Enemy Submarine" and copies have been mailed from this office to the members of the M. and M. Society. It will be remembered that the first bulletin published by the W. C. T. S. appeared something like a year ago. It is however understood that this long interval has been due, not to a lack of material for publication, but rather, as Mr. Corning expresses it, to difficulties brought about by red tape conditions.

COUNCIL.

Meeting of July 9, 1918.

At the behest of the President, a meeting of the Council was held on July 9, 1918, at the Columbia University Club, New York. The meeting was called to order at 5 p. m., by the President, W. R. Ingalls, and these other Councillors were present: Messrs. Channing, Dorr, Huntoon, Kirby, Penrose and Sharpless. The assistant secretary also attended.

Copy of the minutes of the previous meeting having been reviewed by the Councillors, and no objections having been received by the Secretary, they were allowed to stand as written.

Gold Medal for 1919.—The Secretary reported that he had not only followed the instructions of Council in requesting suggestions from all Councillors with reference to "the specific object for which the (1919) medal shall be awarded," but had also sent out follow-up letters. He further stated that eight replies had been received, and submitted the following summary:

(a) "Distinguished Service in Military Mining" has the unqualified approval of four Councillors.

(b) "Distinguished Service in the Advancement of the Science of Mining (or Metallurgy) in its relation to the War" is the first choice of two Councillors and the second choice of one. One of the former, however, also suggests:

(c) "Distinguished Service in Aiding Production and Conserving Supplies of those metals and minerals necessary for the War, which heretofore have largely been imported."

(d) "Distinguished Service in the Metallurgy of Iron and Steel" is preferred by one Councillor, as is also the following:

(e) "Distinguished Service in the Protection of Mine Investors."

(f) "Distinguished Service in the Betterment of the Conditions under which Mining and Metallurgical Industries are carried on," is the second choice of one member.

In opening the discussion, the chair stated that a letter had been received from Colonel Mudd, which was so sound in the viewpoint taken in the matter of awarding the medal for services in connection with the war, that he felt inclined to agree with Colonel Mudd. The chair admitted that he was one of the first to suggest war service in its relation to the mining industry as a suitable object for which to award the 1919 medal, but that he had now altered his opinion in this respect. The Secretary was thereupon requested to read Colonel Mudd's letter, as printed below:

Washington, D. C., June 19, 1918.

Mr. L. D. Huntoon, Secy.,
Mining and Metallurgical Society of America,
115 Broadway,
New York City, N. Y.

Dear Sir:

I have your letter of June 8 with inclosure regarding the medal to be given next year.

I note the suggestion that the medal be given for services in connection with military work in some way. Personally I think an award like that at this time would be very premature and may prove unfortunate in a high degree. Perhaps some one might be found now who has done good work, perhaps the most distinguished work recorded up to this time. Within the next year or two someone else may do something of importance, many fold as great as has been done up to date. At the end of the war, under such circumstances the Society would be in a position of having given a medal for work to one who did not stand at the top and perhaps stood below many others in what he had accomplished in connection with the work. As a whole,

I would heartily favor such a medal at the end of the war, and if necessary, more than one, but it seems to me that any attempt now to grant a medal for war work would be a great mistake.

Up to this time we have not granted any medal for distinguished work in connection with iron or steel or coal mines. Perhaps the iron and steel men are not as numerous in our Society as we would like but that should not influence us in the bestowal of the yearly medal and personally I would favor a medal for the coming year for distinguished services in the metallurgy of iron and steel.

Very truly yours,
S. W. MUDD.

As the Councillors present were in substantial agreement as to the position taken by Colonel Mudd, and with the President's argument, there followed but little discussion on this phase of the subject.

The President then called for the opinion of the meeting regarding the suggestion offered by Colonel Mudd that the object for which the next medal should be bestowed should be in connection with the metallurgy of iron and steel, or if this was not satisfactory, he requested that other suggestions should be submitted. After some consideration, and after it had been determined that no medals for similar objects had been recently awarded by other societies, it was moved, seconded and unanimously carried,

"That the gold medal for 1919 should be awarded for 'Distinguished Service in the Metallurgy of Iron and Steel.'"

Minerals Administration Referendum.—The President explained to the meeting that the referendum on the "Proposed Creation of an Administration of Minerals" had been issued to the membership on May 31, and that S. H. Ball and A. C. Ludlum, the tellers appointed by him, had counted the votes on July 1. He stated that the vote on the resolution relative to this matter had resulted in 182 in approval and 6 in disapproval and submitted the report of the tellers to this effect.

Thereupon the President announced that the resolution covered by the referendum had been carried and declared it an act of the Society.

(Text of the tellers' report, the formal announcement by the President and the resolution itself are printed on page 232 of this issue, and are therefore omitted at this point.)

New Members.—It was reported by the Secretary that Ballot No. 76, covering the names of Charles Dorrance, John Langton, C. W. Nichols, A. P. Watt, Frederic R. Weekes, Charles S. Witherell and Harry J. Wolf, had been polled on July 8, and that these candidates had in each case received the unanimous vote of the Council.

MINING AND METALLURGICAL SOCIETY OF AMERICA

The Secretary advised the Meeting that only three applications for membership to the Society were on file and awaiting action, and that furthermore all suggestions received regarding prospective members had been followed up.

Membership Statistics.—Statement of the present status of the membership was then submitted by the Secretary, as it appears below:

	May 17	July 9
Membership, January 1, 1918.....	301	301
Members elected since January 1, 1918.....	15	22
	<hr/> 316	<hr/> 323
Members resigned	4	7
Members dropped	2	2
Members deceased	1	2
	<hr/> 309	<hr/> 312
Applications before Council.....	0	0
Applications before Members	7	2
Applications before Executive Committee	1	0
Applications in office	3	1
	<hr/> 320	<hr/> 315

Engineering Council.—Although realizing that the Society was hardly in financial position to apply for membership on the Engineering Council, the Secretary felt that the matter was of sufficient importance to call the attention of the M. and M. Council to the fact that the election of outside technical societies to the E. C., was permissible, and that in his opinion the M. and M. Society should be a member. He further explained the requisites to membership on this federation.

Mr. Channing, who is Chairman of the Engineering Council, stated that the M. and M. Society was to a degree already represented on this body, because a number of delegates to the E. C. from other organizations were also members of the Society. A little later, on being asked for his real opinion as to the advisability and desirability of the Society applying for membership on the E. C., Mr. Channing replied negatively, partly on the ground of the expense. The subject was thereupon dropped from further consideration.

Income Tax Referendum.—At this point of the meeting, report was made by the Secretary regarding the final course of action which had been taken in this matter, i.e., that the proper authorities in Washington had been notified by the President of the adoption by the Society of a resolution calling for a repeal of section 209 of the War Excess Profits Tax, and that replies had been received. The

Secretary stated that the letters were published in the June BULLETIN.

The President then pointed out that an analogous subject was that of the taxation of mines which was now being considered by Congress in connection with the new revenue bill, and he referred to the able report of a committee appointed by the New York section of the A. I. M. E., headed by C. F. Kelley. He further observed that the American Mining Congress was to a large extent representing the mining industry before the Committee on Ways and Means, but that nevertheless this committee is still seeking expert advice as to the proper way of handling the situation.

Considerable discussion followed, and the appointment of a committee to give advice in this matter of the war taxation of mines was suggested, although one member thought that perhaps the A. I. M. E. committee had done all that was possible in this direction. Finally, however, Mr. Huntoon made a motion, which after slight modification was passed by the meeting. The amended motion follows:

That a committee of three be appointed by the President to advise, and co-operate, with the directors of the American Mining Congress, or other mining organizations, in representing the interests of the mining industry in the matter of mine taxation.

The meeting adjourned at 6 p. m.

LOUIS D. HUNTOON,
Secretary.

OBITUARY.

JAMES DOUGLAS.

James Douglas, LL.D., distinguished in so many ways, but primarily as a mining engineer and in the metallurgy of copper, died in New York on June 25 in his eighty-first year. He had been in poor health for many months and for some time recently had been confined to the house.

Born in Quebec on November 4, 1837, and educated in Canada and Scotland, James Douglas early came to the United States, and from 1875 onward was intimately connected with the mining and metallurgical industries of the country, although never completely losing touch with his native land.

In 1858, James Douglas graduated as a bachelor of arts from Queen's University, Kingston, and then attended Laval University, Quebec, taking up the study of medicine. It may be supposed that he was influenced in this course by the fact that his father, also James Douglas, was a surgeon, who, late in life, became prominent in advocating proper treatment of the insane and founded the Quebec Lunatic Asylum. It is of record that James Douglas, the younger, was in fact associated with his father in the management of this home for the insane.

James Douglas continued his studies at Morrin College, Quebec, finally becoming professor of chemistry, which position he retained for a number of years. At a still later period, he took a course in theology at the University of Edinburgh, but, although given his license to preach, Douglas was not ordained, wisely deciding that the field of science was the one for which he was better fitted.

His father having made certain unprofitable investments in mining properties, James Douglas, junior, was called upon to assist in their operation, and in 1864 he became managing director of the Harvey Hill Copper Co., owning mines in the Province of Quebec. Then in 1875, he accepted the superintendency of the Chemical Copper Co., at Phoenixville, Pennsylvania, and it was here that he developed the Hunt-Douglas wet process for the extraction of copper from its ores.

Early in the '80s, Dr. Douglas became interested in the mines of the Southwest, and induced the late William E. Dodge, the late D. Willis James, and associates in the original firm of Phelps, Dodge & Co., to purchase the Atlanta and other claims in the Warren Mining District, Arizona, contiguous to the Copper Queen Mine. In 1885 the Atlanta Mining Co. and the Copper Queen Mining Co. were combined under the name of the Copper Queen Consolidated Mining Co., and of which Dr. Douglas was made president. From this time until his death, Dr. Douglas was closely identified with the economic progress of the Southwest, his influence being felt not only in the fields of metal and coal mining but also in that of railroad construction. He became president of the Detroit Copper Mining Co. of Arizona, with copper mines at Morenci, Arizona; the United Globe Mines, operating copper mines at Globe, Arizona; the Commercial Mining Co., with mines near Prescott, Arizona; the Moctezuma Copper Co. of Nacozari, Sonora, Mexico; the Stag Canon Fuel Co., operating coal mines at Dawson, New Mexico; and more recently, the Burro Mountain Copper Co., Tyrone, New Mexico.

As transportation in this arid country did not keep pace with the advance of the mining industry, Dr. Douglas early embarked in the building of the railroads for the transportation needs of the companies with which he was associated. Thus, the El Paso and Southwestern Railroad Co. was begun, under the name of the Arizona & Southeastern Railroad Co., in 1886. Of this system, which has expanded until at the present time it has over a thousand miles of standard gauge track, Dr. Douglas was for many years the president.

Moreover, Dr. Douglas became president of Phelps, Dodge & Co., the mother company of all these numerous activities and which today are legally consolidated under the name of the Phelps Dodge Corporation.

Throughout his long life, Dr. Douglas took a live interest in the purely professional side of the mining engineer and the metallurgist. He became a member of the American Institute of Mining Engineers in 1889, was in succession a vice-president and the president, and at other times a member of the board of directors. In 1906, he was elected an honorary member.

In January of this year Dr. Douglas accepted election also to honorary membership in the Mining and Metallurgical Society of America, being one of the only two so elected in the life of this society.

Dr. Douglas' love for the natural sciences influenced his entire life and led him into many fields and thus, in addition to the two societies mentioned, he was a member of the following: American Electro-Chemical Society, American Museum of Natural History (Trustee), Canadian Mining Institute

(Patron), Franklin Institute, Institution of Mining and Metallurgy, Iron and Steel Institute, New York Zoological Society and North of England Institute. Also, he was a member of the American Academy of Political and Social Science, American Geographical Society, American Philosophical Society, New York Historical Society and the Society of Arts (British).

The Institution of Mining and Metallurgy, in 1908, awarded to Dr. Douglas its gold medal and in 1915 he received the John Fritz medal "for notable achievements in mining, metallurgy, education and industrial welfare."

Besides being the co-discoverer of the Hunt & Douglas process, the name of James Douglas is connected with other inventions in metallurgical equipment.

Dr. Douglas had for many years been a trustee of McGill University and in 1899 received from it the degree of doctor of laws. In 1916, his alma mater, Queen's University elected him chancellor.

As a contributor to the technical literature of the country, Dr. Douglas was well known, and, although his writings of this class were perhaps largely devoted to the subject of copper, they covered a wide range of scientific thought. These articles appeared in the private publications of the different professional organizations of which he was a member and in the technical journals. A complete bibliography of his scientific contributions would make interesting reading.

It may occasion some surprise to those who did not know the man well that Dr. Douglas was also an author on general subjects. To mention some of these writings, the following are listed: Canadian Independence, Annexation and Imperial Federation; Old France in the New World; New England and New France; Journal and Reminiscences of James Douglas, M.D.; Quebec in the Seventeenth Century.

Dr. Douglas was a philanthropist in the true meaning of this word, giving freely and wisely from his large means to charitable and educational institutions. Among the former was his large gift to the General Memorial Hospital for research work in cancer.

In 1860, James Douglas married Miss Naomi Douglas of Quebec, who survives him as do the following children: James S. Douglas, a major connected with the American Red Cross in France and a mining man of prominence; Walter Douglas, who on the resignation of his father became president of the Phelps Dodge Corporation; Miss Elizabeth Douglas, and Mrs. Edith M. Douglas, wife of Archibald Douglas, member of the firm of lawyers, Douglas, Armitage & McCann.

A biographical sketch, such as the above, covering hardly more than a bare outline of the life of James Douglas, and dwelling largely on his professional career, seems inadequate. As one obituary notice has stated, it is inevitable that a biographer will one day write a great book about James Douglas, "for he was not only a great man in our industry, but also he was one of the great men of the world." This must be waited for but, in the meantime, it is but fitting that some recognition other than a formal notice of Dr. Douglas' achievements should appear today. With this end in view, a few of the late Dr. Douglas' friends of long-standing have consented to join in a symposium of appreciation which will afford an insight into the character of the man.

It is difficult for one who has been closely associated in business for many years with Dr. James Douglas adequately to portray in a few words the many sides of his versatile character and activities.

His success was due to a rare combination of scientific knowledge and business ability. He was a successful manager of large properties, but his principal interest in all his work lay in the solution of the scientific problems which constantly confronted him. He had a wide love of art and literature. As a relaxation from business cares he pursued his historical studies and wrote his histories of Canada. He had many wide human interests, social, educational, medical, but back of all there was a scientific spirit unusual in its nature and versatility.

Early in his career he adopted the policy, rare in those days, of giving to his competitors, the benefit of any discoveries which he might make. He had no trade secrets and in all his relations with neighboring companies in the different camps, where his properties lay, he freely disclosed to them the results of all development work which affected their workings.

He was a pioneer in the best kind of welfare work for his men, and constantly thought of their interests. He believed in high wages and fair treatment, and his company stores were so managed as to give the necessities of life to the men as nearly as possible at cost.

Going to the Southwest, when it was not much more than a desert, he had a great vision of its future possibilities and his share in the development of that great section of the country entitles him to rank high in the list of the Builders of the Nation.

The rare beauty of his life and character cannot be told, but the thousands who knew him will long hold their memories of him as a precious heritage.

CLEVELAND H. DODGE.

JAMES DOUGLAS, MASTER BUILDER.

Gladly complying with the request of the M. & M. Society to add my word to the appreciation of this great man—great in soul and in mind, I shall refrain from compiling another list of his triumphs in many fields, and of the honors which came to him. I shall try to give his own estimate of the qualifications which enabled him to succeed.

James Douglas was a profound student of *men*. His many historical addresses and his more ambitious studies of the life and early times of Canada and New England, reveal that it was the *men* of the period, their training and experiences, that, in his opinion, determined the growth or retrogression of an era, rather than the currents of political, religious and social movements.

We had many talks and intimate discussions of his life work and of his ideals. He was unusually gifted with ability to stand outside himself and impersonally to study his career and to discuss the elements contributing to his success. In a letter written to me in August, 1915, he said:

"I made my reputation as a mining engineer and metallurgist in spite of the fact that the only scientific lectures I ever attended were in a course on chemistry when I was studying medicine. I think that the lesson of my success, such as it has been, demonstrates that great enterprises are often best controlled by managers who have a general wide technical knowledge, *but are not specialists*, and who have had the advantage of sound literary educational training. The effect of specializing of any kind is to contract a man's outlook though it may make a good student of him."

This thought he has often elaborated. No one more appreciated the need of trained specialists than he, nor employed them more generously. But was he not right in the suggestion that the *head* of any great business should be a man of broad, general culture; that the leaders of mankind have always been from the ranks of those young men who see visions, or of old men who dream dreams?

Do we not in these days over-specialize? Are not the men who are now forging to the front in Army and Navy and in bureaucratic control those who have had broad, general culture and training rather than men who have studied one thing alone, until they become blind to any line of advance not charted in their text books nor crystallized in regulations?

I am not sure that James Douglas ever wrote poetry, but he had the poetic instinct of the best of the poet-prophets, and the training and vision and imagination which enabled him to see much that was to others invisible and to create the seemingly impossible.

ALBERT R. LEDOUX.

I count it as one of the treasures of my professional career that I had the honor of Doctor Douglas's friendship, and had intimate association with him during many years as a fellow-member of professional committees, besides the relationship that exists between the editor of a paper and one of his most important contributors. May I pause here to draw attention to what I fear I did not consider sufficiently at the time, viz., the elasticity and breadth of this man, that permitted him, amid his multifarious interests and the enormous demands of a great business, to find time to write many technical and philosophical articles with his own pen. Nor were they ever perfunctory, but rather the inspirations that he considered should be imparted to his fellow-workers and to the public. I never hesitated to ask Doctor Douglas to contribute an editorial as an expression of the opinion of the *Engineering and Mining Journal* on some subject that I felt he was the best authority; and not infrequently did he offer voluntarily something that he felt should be published in that way. All of this was quite apart from his signed contributions. Now that he is gone, I marvel that he found time to do it and I feel it rather preposterous that I should have expected so much, should have asked so much, and that he never failed to respond.

All of this, however, was in line with his belief in the importance of the dissemination of knowledge, of discussion of controversial questions, of tearing away the veils of secrecy that used to enshroud commercial and technical practice. He practiced what he preached. I have expressed elsewhere the opinion that this was the great contribution of Doctor Douglas to his fellow-men. For as a prophet, teaching so wisely, he promoted the advance of industry all over the world, and especially in copper mining and metallurgy, wherein his disciples, knowing him best, listened most carefully to his teachings.

I think that Doctor Douglas was one of the great men of the world, not only during the half-century of his activity, but one of the great men of all time. I think that a loving biographer will write a great volume about him and reveal to those who did not know him how wonderful a man it was who lived among them and taught fundamental things that improved the lot of humble folk all over the world. Doctor Douglas, the wise philosopher, characterized ever by the sanity of his thought and by friendliness for his fellow-men, was the apostle of work and the teacher of how to work best. His career is the apotheosis of work and the theory of the advancement of the welfare of the human race by peaceful industry.

W. R. INGALLS.

MEMBERS ELECTED IN JULY.

Charles Dorrance.....	Jefferson Apartments, Scranton, Pa. Gen. Mgr., Coal Dept., Delaware & Hudson Co.
John Langton.....	233 Broadway, New York Consulting Engineer.
C. W. Nichols.....	430 Park Ave., New York Asst. Gen. Mgr., General Chemical Co.; Pres., Nichols Copper Co.
A. P. Watt.....	52 Vanderbilt Ave., New York Consulting Engineer.
Frederic R. Weekes.....	42 Broadway, New York Consulting Mining Engineer.
Charles S. Witherell.....	Guggenheim Bros., 120 B'way, New York Metallurgical Engineer.
Harry J. Wolf.....	1510 Washington Ave., Golden, Colo. Con. Mining Engr.; Prof. of Mining, Colorado Sch. of Mines.

CHANGES OF ADDRESS.

Chase, M. F.....	War Industries Board, Washington, D. C.
Magnus, B.....	care of Henry M. Toch, 320 Fifth Ave., New York
Munroe, Henry S.....	Litchfield, Conn.
Rawlings, Stuart L.....	Casilla 309, Lima, Peru
Weld, C. M.....	U. S. Bureau of Mines, Washington, D. C.

PERSONALS.

H. C. Bellinger, general manager of the Chile Exploration Co., has recently returned from Chile.

Albert Burch and H. W. Hardinge are in charge, respectively, of the Pacific Coast and Appalachian districts recently created by the U. S. Bureau of Mines for the purpose of making an inventory of manganese deposits and to assist in stimulating production. The country has been divided into four districts only. In this same connection, G. H. Clevenger is stationed at Golden, Colorado, in charge of experiments in the metallurgy of manganese.

Will L. Clark has resigned as Federal Fuel Administrator for Arizona. It is understood that Mr. Clark is prepared to volunteer again for Government service when the occasion arises.

C. A. H. de Saulles is reported to have been appointed general manager of the Colorado Department of the American Smelting and Refining Co.

J. S. Douglas, Major, has returned from France, reaching this country in the third week of June.

S. S. Fowler and Oscar Lachmund were elected councillors of the Western Branch of the Canadian Mining Institute at its annual meeting, held in Vancouver on May 27. W. Fleet Robertson was at the same time made vice-chairman.

George H. Garrey, geologist for the Belmont Surf Inlet Mines, Ltd., and Frederick Bradshaw, general manager of the same company, are referred to in the annual report of the president.

Louis D. Huntoon was absent from New York during the greater part of June on a professional business trip in New England.

Hennen Jennings appeared before the Committee on Ways and Means of the House in the matter of war taxation on mines. Mr. Jennings gave it as his opinion that the production of gold should be stimulated.

Frederic Keffer presented a paper entitled "Flotation Practice at the Highland Valley Mine" at the annual meeting of the Canadian Mining Institute, Western Branch.

Robert A. Kinzie appeared on June 28 before the San Francisco hearing of the U. S. Tariff Commission, which on that day was devoted to the tungsten industry.

Oscar Lachmund is referred to editorially by the *Mining and Engineering Record* of April 30, and full credit is given to him for the development of the mines at Copper Mountain, owned by the Canada Copper Corporation, Ltd.

George A. Laird, who has been in Texas for some months, reached New York on July 7. He will be associated with the same company as before. The length of his stay in the East is indefinite.

C. O. Lindberg is investigating the sulphur situation for the U. S. Bureau of Mines.

W. J. Loring is interested in certain tungsten properties in Nevada.

Lucius W. Mayer's name appears in the *Mining and Engineering Record* in connection with his report as president of the Canada Copper Corporation, Ltd. This is the company of which A. H. Rogers is a director and consulting engineer, and of which Oscar Lachmund is general manager.

S. W. Mudd announces his promotion to the rank of colonel

of the Engineer Reserve Corps. He still remains Assistant Director of the U. S. Explosives Plants.

Stuart L. Rawlings, under date of June 8, announces by letter that his official position is General Manager of the Cerro de Pasco Copper Corporation. Mr. Rawlings' headquarters are in Lima, Peru.

W. Fleet Robertson is reported in the *Mining and Engineering Record* as having, in his official capacity, made an adverse report on the "French" process for the reduction of ores. It would seem that the British Columbia legislature has been advancing funds for the operations at Nelson of the French Complex Ore Reduction Company in spite of this and other unfavorable reports.

F. T. Rubidge reports that he has declined his election to the treasurership of the New York section, A. I. M. E., and has become a member of the executive committee. This is in correction of a "Personal" in the June issue.

W. J. Sharwood writes to the *Engineering and Mining Journal* with reference to the occurrence of tungstic oxide in manganese ores.

A. M. Smoot contributes an article on the "Determination of Tin in Concentrates" to the July 6th issue of the *Engineering and Mining Journal*.

J. E. Spurr has taken charge of the war-minerals investigation instituted by the U. S. Bureau of Mines.

J. B. Tyrrell is reported to have been recently in the Cobalt and Porcupine districts.

H. C. Wilmot is representing a New York syndicate which has purchased mining properties in the Bradshaw Mountains in Arizona.

MEMBERS OF THE SOCIETY WHO HAVE BEEN CALLED INTO THE SERVICE OF THE U. S. GOVERNMENT AND THE ALLIED ARMIES.

Lawrence Addicks.....	Member, U. S. Naval Consulting Board
Ralph Arnold.....	Member, Board of Tax Reviewers
Percy E. Barbour.....	Capt., Reserve List, N. G., N. Y.
Edwin S. Berry.....	Capt., 27th Engineers, O. R. C.
Reginald W. Brock.....	Major of Canadian forces
Alfred H. Brooks.....	Major of Engineers, O. R. C.
Gelasio Caetani.....	Capt., 1st Reg. of Engineers, Italian Army
M. F. Chase.....	Dir., Explosives Division, War Ind. Board

J. Morgan Clements....Bur., Foreign and Domestic Commerce
 Welton J. Crook.....Officers' Training Camp
 Benedict Crowell..Major, Eng. O. R. C.; Asst. Secretary of War
 W. B. Devereux, Jr.....Capt., Aviation Section, S. O. R. C.
 J. S. Douglas...Maj. and Dir. Warehouses, American Red Cross
 Francis Drake.....British Aircraft Production Department
 A. S. Dwight.....Major, 1st Res. Engineers, O. R. C.
 Baird Halberstadt..Fed. Fuel Administrator, Schuylkill Co., Pa.
 W. L. Honnold.....Am. Dir., Com. for Relief in Belgium
 Herbert C. Hoover.....U. S. Food Administrator
 John D. Irving.....Capt., 1st Res. Engineers, O. R. C.
 D. C. Jackling.....Dir., U. S. Explosives Plants
 Donald M. Liddell.....Capt., Aviation Section, Sig. R. C.
 Halstead Lindsley.....Major, Ordnance R. C.
 Charles W. McMeekin.....Major of Engineers, O. R. C.
 C. H. Macnutt.....Lt. of Engineers in Canadian forces
 B. Magnus.....Capt., Engineer Reserve Corps
 W. W. Mein.....Assistant to the Secretary of Agriculture
 C. W. Merrill....Div. of Chemicals, U. S. Food Administration
 H. G. Moulton.....Engineer, War Industries Board
 Seeley W. Mudd.....Col. and Asst. Dir., U. S. Explosives Plants
 O. B. Perry.....Lt. Col., 27th Engineers, N. A.
 Joseph Hyde Pratt.....Lt. Col., 105th Engineers, N. A.
 A. L. Queneau.....Late of the French Army
 M. L. Requa.....Chief of Oil Div., U. S. Fuel Administration
 Edgar Rickard.....U. S. Food Administration
 A. P. Rogers.....Materials Dept., Signal Corps
 W. L. Saunders.....Chairman, U. S. Naval Consulting Board
 Millard K. Shaler.....Hon. Sec., Com. for Relief in Belgium
 J. E. Spurr.....U. S. Shipping Board
 S. C. Thomson.....War Export Board
 Arthur L. Walker....Con. Met. to Chief of Ordnance. U. S. A.
 William Young Westervelt..Chairman, War Minerals Committee
 Pope Yeatman.....Chief, Non-Ferrous Metals Sec., War Ind. Brd.

DIED IN THE SERVICE OF HIS COUNTRY.

William HagueJanuary 1, 1918

Mining and Metallurgical Society of America

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ANNOUNCEMENTS.

Gold Medal.—Early in September, blanks for the nomination of candidates for the gold medal of 1919 will be issued to the members. According to the provisions of the rules, the medal committee will begin its deliberations on October 14, and thus all nominations should be in its hands on that date. The members should also bear in mind that concise, but complete, statements should be made as to the claims of the nominees for consideration.

Government War Service.—Particular note should be taken by the members of what is said on page 253 with regard to the "Classification of Engineers." The opportunity to volunteer for the work of making examinations for the U. S. Bureau of Mines still exists, and it is made easier by the definite statement that engineers will be called upon to serve in their home districts only.

One other opportunity to serve is given by the Comfort Fund of the Association of the 27th Engineers, initiated by the *Engineering and Mining Journal*. It is none the less important because the service performed is inactive in character, and it opens a way, at the same time, for those who are not available for active duty to do their share.

The Secretary-Treasurer's report for the period beginning November 24, 1917, and ending with June 30, 1918, has just been received. It shows total contributions to the Comfort Fund of \$15,285.86, and a balance on hand of \$10,707.41.

In consideration of the fact that the demands today on one's pocketbook are larger than ever before, it may be thought that no better showing should be expected. It will be observed, however, that the subscriptions are those for a period of seven months and that the pro rata amount is not high, even though the mining profession alone were concerned. It must not be forgotten that, as one appeal aptly puts it, "what the boys over there consider comforts and luxuries are looked upon as bare necessities over here."

Minerals-Control Bill.—On another page will be found the President's letter to the authorities in Washington announcing the

formal action of the Society with reference to the pending legislation to create an administration of minerals.

Since the closing of the Senate Hearings on the minerals-control bill, it is understood that the Committee on Mines and Mining, with Senator Henderson at its head, has undertaken a revision of this legislation as passed by the House. The recent recess of Congress was in fact not allowed to interfere with the preparation of the redraft of this measure.

It seems possible that, in spite of objections from the supporters of the original war minerals bill, the formation of a corporation to carry out the purposes of this legislation will be authorized. In any event the new bill will differ materially from that introduced to the Senate.

Fourth Liberty Loan.—Early notices of the campaign for the next war loan were first issued to organizations of the Second Federal Reserve District in the latter part of August. The announcement states that this, the Fourth Liberty Loan, will probably "involve the largest single bond issue, which the world has ever seen" and that to make the loan successful the effort of each and all will be needed. The campaign begins on September 28 and closes three weeks thereafter, on October 19.

Bound Volumes.—The 1917 bulletins in bound form can still be obtained by application to the Secretary. It must be remembered, however, that orders should be placed promptly because the stock on hand is small.

ADMINISTRATION OF MINERALS REFERENDUM.

Pursuant to the declaration by W. R. Ingalls, President of the Society, that the resolution adopted by the membership in approval of the proposed legislation to create an administration of minerals had become a formal action of the Society, the communication which follows was sent to the Honorable Martin D. Foster and the Honorable Charles B. Henderson, chairmen respectively of the committees on mines and mining for the House of Representatives and the U. S. Senate. Replies in acknowledgement have been received.

July 11, 1918.

Dear Sir:

We beg to inform you that the members of the Mining and Metallurgical Society of America, by referendum ballot held between June 1 and July 1, 1918, adopted the following resolution by a vote of 182 in the affirmative and 6 in the negative:

"Resolved, that it is the sense of this meeting that the general principles of this Bill tend to further the efficiency of the Government in prosecuting the war while safeguarding the welfare of the mineral industry and that this or a similar bill should be made a law, provided, however, that the products covered by said Bill as passed shall include only such minerals and metals as are really required for war emergency needs as are those specifically enumerated on page two of draft before this meeting; viz., H. R. 11259."

The minerals alluded to are as follows:

"Antimony, arsenic, ball clay, bismuth, bromine, cerium, chalk, chromium, cobalt, corundum, emery, fluorspar, ferro-silicon, fuller's earth, graphite, grinding pebbles, iridium, kaolin, magnesite, manganese, mercury, mica, molybdenum, osmium, sea salt, platinum, palladium, paper clay, potassium, pyrites, radium, sulphur, thorium, tin, titanium, tungsten, uranium, vanadium, zirconium."

The above expression of opinion is therefore a formal act of the Society.

Yours very truly,

LOUIS D. HUNTOON,
Secretary.

W. R. INGALLS,
President.

COMMUNICATIONS.

War Devastated Villages.—Under date of July 25, A. H. Wethey writes from Paris, where he has been since early in the spring. Mrs. Wethey is president of the executive committee of the "Fund for War Devastated Villages" and Mr. Wethey has joined her in this work. A leaflet accompanies the letter from Mr. Wethey, but as the text matter is in French and as the notice is not in form for publication, it is not reprinted. The following are, however, the salient features:

1. All services being voluntary, expenses are small and thus all subscriptions can be employed almost entirely for the work of rescue.
2. For the present the Fund is being used in assisting the colonies of refugees which have been established by the French government. Employment is found for the refugees, families are reunited and their general welfare is supervised.
3. For the future, preparations must be made for the reestablishment of homes, for the care of the children and for the cultivation of the fields.

The leaflet further states that bureaus have been opened for the receipt of clothes and blankets. Moreover, it appears that agricultural implements of all kinds are wanted.

The final paragraph of Mr. Wethey's letter is quoted as follows:

I have been engaged here in War Relief work and enclose a leaflet describing our Society. Of course the Red Cross are doing splendid work,

but there is still a wide field of usefulness for such a work as ours. If you and some of your friends can assist us in any way we should appreciate it very much.

The Secretary will be very glad to act on behalf of such members who may desire to reply to this appeal, or to supply the address of Mr. Wethey to those wishing to communicate direct.

A. L. Queneau.—From Mr. Queneau comes the following communication, sent forward by him on July 20 in response to an inquiry from this office as to the character of the war service now being rendered by him. It will be remembered that Mr. Queneau is associated with The Chloride Syndicate, Limited, located at Wallsend-on-Tyne, in England.

I beg to acknowledge the receipt of your favour of the 27th ult. with copies of the "Bulletin" that has recently reached me.

I very much appreciate the interest shown me by the American Societies in which I hold membership—which membership I value more and more highly as the years go by, especially now that we have such a large American Army in the field, and which Army by its deeds has more than fulfilled the expectations of all well wishers of America.

You mention that my name appeared in the Honor Roll published, followed by the designation "Late of the French Army." This is not correct as I am still Official Interpreter in the French Army for the duration of the war. At the request of the British Ministry of Munitions I was relieved from my functions in the field when attached to the British Army to assist as Consulting Engineer the production of Lead and Zinc in England, especially the latter.

When the series of bad pushes of the Germans took place this summer, I thought it would be my duty to rejoin the Army in the field, and communicated with my superior officers, who, however, advised me to remain at my present work.

In this connection, I would have liked to be attached to the American Forces—though remaining with the French Army, and through some friends in Washington obtained a letter of introduction to the American Commander in Chief. I fear, however, that it will not be possible for me to avail myself of this, in view of the successful work of the Allied Forces in France.

I will forward you in the near future a detailed relation of my experience during the war.

With kind regards,

Very truly yours,

A. L. QUENEAU.

Lawrence Addicks.—Mr. Addicks has been so long absent from his friends that the members will be indeed glad to hear of his safe return as shown by his letter of August 12 addressed to the Secretary, and as printed in part below:

As to what I have been doing these last 10 months, I went out, via the Pacific, to the Bawdwin Mine in Upper Burma, for the Burma Corporation, Ltd., for which I am now the General Consulting Engineer, and then proceeded, via the Mediterranean, to England, where I spent about three months, a considerable part of which was connected with Naval Consulting

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Board matters, investigating the submarine matters in the War Zone. I returned, by the Atlantic, a few days ago and am now in the course of moving my office over to No. 6 Church St., to which all communications should be sent after next week.

I think I shall be able to get out to the meeting of the Mining Engineers at Colorado, and hope I shall have the pleasure of seeing you there.

Classification of Engineers.—Bearing in mind the circular letter issued over the signature of the President of the Society to the members on June 2, 1917, it is interesting to note that, in a communication from Harvey S. Mudd, dated July 30, 1918, the Secretary is requested to supply a list of engineers, who are ready to serve the Government by making field examinations for the U. S. Bureau of Mines.

It appears that J. E. Spurr, who has been put in charge of the Bureau investigation of war minerals, desires to prepare a selected list of mining engineers "whose opinion will carry weight," and who may be called upon to examine prospective mineral properties. Volunteers for this work will not be required to make examinations at any great distance from their own headquarters.

Although the response to the appeal of Van H. Manning, as conveyed by the letter of the President of the Society last summer, was not as hearty as had been expected and the tabulated list of volunteers therefore not as extensive as could be wished, a goodly number of the members registered for Government War Service. Heretofore, except for isolated cases, this list has been of little real use, but now, however, it may be that the effort of last year will prove after all to have been worth while.

A. C. E. in London.—The letter printed below was received by the Secretary on August 14:

Our Chairman, Mr. C. W. Purington, is leaving for the Far East via New York and Washington immediately. The American Committee of Engineers in London found it necessary to accept Mr. Purington's resignation as Chairman and have elected Mr. D. P. Mitchell as Honorary Chairman in his place, and Mr. Francis Drake as Honorary Vice-Chairman.

I know Mr. Purington has planned on calling upon you, and such advice as you can give him regarding closer co-operation between our societies would be welcome. I may add that Mr. Purington's fine spirit and resolve have been our inspiration, and he will continue to be our most active member though not in London.

I am sure that there will be a number of members of your society who will be interested to know that Purington will be in America for a short while,—hence my letter.

Very truly yours,

AMERICAN COMMITTEE OF ENGINEERS IN LONDON.

G. I. GAY,

Hon. Secretary.

It so happened that Mr. Purington preceded this announcement by one day and was good enough to get into immediate touch with the Secretary's office. Subsequently, arrangements were made by which Mr. Purington was enabled to meet the President, Secretary and Assistant Secretary of the Society. The discussion at this meeting was very general in character, but plans were initiated for closer co-operation between the A. C. E. L. and the Society.

As the letter states, Mr. Purington is on his way to the Far East and will be in the United States for a short time only.

Occupational Classification.—Mr. A. H. Fay, Mining Engineer of the U. S. Bureau of Mines, has sent to the Secretary advance copy of "A Classification and Designation of Occupations in Mines and Mining," which is being prepared at the request of the Department of Labor to enable it to intelligently meet requisitions for mine labor received from the operators. As Mr. Fay himself states, this occupational classification is not actually a glossary, largely because minor positions, those not requiring much in the way of experience, are listed under the one heading "Labor." However, it pretty thoroughly covers all classes of employees, both of collieries and of the metal mines.

Glossary of Terms.—In the March issue of the BULLETIN announcement was made that a glossary of mining and metallurgical terms had been undertaken by the U. S. Bureau of Mines. Mr. A. H. Fay, who has been in charge of this work, now writes that a part of the copy is in the hands of the printer. There is every reason to believe that this dictionary of definitions will prove a very solid contribution to the literature of the metallurgical and mining professions.

Association of Eleventh Engineers.—The third number, July, of "The Fighting Engineer" has reached the Secretary. This, as will be remembered, is the official organ of the Association of Eleventh Engineers and is devoted to matters affecting the welfare of the men of this regiment, and their relatives.

In this issue appears an account of the ceremonies, held on July 14, to commemorate the anniversary of the departure of the 11th Engineer Regiment for France.

It was of this regiment that the late John Duer Irving was a captain, early joining what at the outbreak of the war was known as the New York Engineer Corps.

U. S. Fuel Administration.—In connection with the "Save Oil" letter issued by the U. S. Fuel Administration, copies of which have gone out to the members, the Secretary has received the follow-

ing communication from C. C. Winningham, Chief of Gasolene Section, Oil Division, Bureau of Conservation:

Your prompt compliance with the request for co-operation in the Campaign for Oil Conservation is greatly appreciated.

It is important work which we all have before us. Everyone recognizes the startling waste that has characterized the production, handling and use of oil and anything done to reduce that loss will be of value to every individual in the nation.

There is no desire to hamper the users of oil in its rational consumption. It is believed that if everyone will do his best to prevent waste, and diligent care in production, in eliminating loss through spilling and leaky containers, and in preventing wasteful methods of use, there will be a saving of oil great enough to meet the great demands occasioned by the war, without the necessity of restrictive control.

But if proper appreciation of the situation is not at once established with all who through carelessness or otherwise are responsible for the waste it will be imperative that such steps will be taken as will make further losses impossible. Hardship to many and the restriction in the use of oil will be inevitable. Therefore, all that you can do to further the message of Oil Conservation will be of great National benefit, and we feel that the "save oil" letter which we sent forward to you for the members of your organization is of value.

OTHER SOCIETIES.

ENGINEERING COUNCIL.

Alfred D. Flinn, Secretary of Engineering Council, etc., issues, under date of July 6 but not released until August 10, a treatise entitled "Centralized Activities of National Engineering Societies." Mr. Flinn points out that although the engineering profession as a whole has never been adequately organized, some progress perhaps is now being made in the right direction. He feels that of the four hundred engineering societies which are alive today, a few at least have no good reason for existence, but, this question aside, Mr. Flinn calls for united action.

The larger part of Mr. Flinn's paper, however, is devoted to a comprehensive description of the United Engineering Society, Engineering Foundation, Engineering Council and its committees, and Engineering Societies Library. Appended are certain questions with reference to this matter of centralizing engineering activities, to which answers are requested.

War Committee of Technical Societies.—Bulletin No. 3, covering "Problems of Airplane Improvement" has been issued by the W. C. T. S. and the Naval Consulting Board. Copies of it will be in the hands of the members as this BULLETIN of the Society goes

to press. As in the case of Bulletin No. 2 it carries the authorization of Josephus Daniels, Secretary of the Navy, and is accompanied by a letter setting forth the aims and purposes of the W. C. T. S.

OBITUARY.

JOHN DUER IRVING.

John Duer Irving, Ph.D., Professor of Economic Geology at Yale University, for many years Geologist of the U. S. Geological Survey, Editor of *Economic Geology* and a captain of the 11th Regiment of the Engineer Reserve Corps, A. E. F., died of pneumonia in France on July 20, 1918.

Born in Madison, Wisconsin, on August 18, 1874, Captain Irving followed in the footsteps of his father, Roland Duer Irving, who had been professor of geology, mineralogy and metallurgy in the University of Wisconsin, in his love for the natural sciences and for imparting his knowledge to the younger generations. His father dying in 1888, the family moved to the East, and in course of time John Duer Irving entered Columbia College, graduating with the class of 1896 as a bachelor of arts. At the same time, however, he was taking special courses in geology under Professor J. F. Kemp and his summers were devoted to field work in this subject.

As the result of his geological studies, Irving received from Columbia his master's degree and that of doctor of philosophy successively in 1898 and 1899.

In 1899, Irving was appointed through civil service an assistant geologist of the U. S. Geological Survey, becoming geologist in 1905, and remaining active in its work until his departure for the front. In addition to the influence of Professor Kemp, while with the "Survey" he derived much benefit from his association with S. F. Emmons and others.

The winter of 1902-1903 was the beginning of John Duer Irving's career as a teacher. He first became acting professor of mining and geology at the University of Wyoming and then accepted in 1904 a call from Lehigh University to be assistant professor of geology, being appointed to the full professorship in 1906. Finally, in October of 1907, Irving became professor of economic geology in the Sheffield Scientific School at Yale University, retaining this position until his death. There in 1907, he received the honorary degree of master of arts, and greatly aided in the expansion of the course in mining, begun some four years before.

Professor Irving was managing editor of *Economic Geology*, appointed at its inception in 1905, he remained in this position until his death. His connection with the "Survey" and his sincere love for the subject, naturally led him to publish much both on structural and economic geology.

When the officers' training camp at Plattsburgh opened in 1916, John Duer Irving at once registered his name and spent the summer months in fitting himself for a soldier. Then, at the entrance of the United States into the world-conflict, Irving took his examination and received a captain's commission in the Officers' Reserve Corps. He was assigned to the New York Engineer Corps which later in part became the 11th Engineer Regiment.

This regiment sailed for the other side early in the summer of 1917. Although not much is known of Captain Irving's activities, or duties, at the



JOHN DUER IRVING

front, apparently he was early called upon to instruct the less skillful in mining warfare, or at least it was reported that he was attached to the Army Engineers' School, located somewhere in France.

Professor Irving was a member of the American Institute of Mining Engineers and a charter member of the Mining and Metallurgical Society of America. He was a fellow of the American Association for the Advancement of Science, the New York Academy of Sciences and the Geological Society of America.

A more intimate record of Professor Irving's connection with Yale University has been kindly supplied by Louis V. Pirsson, Professor of Geology at the Sheffield Scientific School, and follows below:

My acquaintance with him commenced when his connection with Yale began. He was called from Lehigh University to a professorship of Economic Geology in the Sheffield Scientific School in 1907, and began his regular work in the fall of that year. He had, however, on invitation given a short course of lectures in that subject the previous winter to the students in mining engineering.

The school had recently opened a department of mining and it was thought that the acquisition of Irving to its teaching staff would greatly strengthen it. The results showed that this expectation was fully justified. He rapidly built up a strong sub-department of economic geology, which aided greatly the Scientific School on the mining side and the Graduate School of the University on the geological side. To undergraduates in mining, metallurgy and chemistry he gave instruction in those phases of geology which are of especial value in mining and economic work, in especially designed courses. For graduate students, who were working for advanced degrees in mining or geology, he developed a number of advanced courses in economic geology, which were very successful. These courses were given in part by lectures, and in part by work in the laboratory.

Many men, graduates of the mining or geological departments, who have since occupied responsible positions in their respective fields, and who received a greater or lesser part of their training under Professor Irving have testified to the value and thoroughness of his instruction, and to the beneficial effect it had upon their careers.

He was a hard and tireless worker and spared neither time nor pains to make his teaching effective by thorough preparation, both of himself for his lectures, and in the acquisition and arrangement of proper material for his laboratory courses. Although demanding high ideals of work and thoroughness in its performance from his students, his sympathy, kindness and justice made him not only respected but loved by them.

As a college officer he was held in high esteem by all his colleagues, a feeling prompted by the genuineness and straightforwardness of his character, by his willingness to co-operate in all school matters and by the saneness and reasonableness of his views and judgment. His untimely death is a great loss to the teaching staff of the Sheffield Scientific and the Graduate Schools of Yale, and a personal bereavement to his many colleagues who loved and honored him.

LOUIS V. PIRSSON.

As this issue of the BULLETIN goes to press, Doctor Peter Irving, a brother of Professor Irving, sends the Secretary copy of letter received by President Hadley, of Yale University, from Major Evarts

Tracy. That part of the letter which follows tells in brief why Captain Irving is no longer with us—"he gave all he had".

July 21, 1918.

Before this reaches you, you may have heard of the death of Captain Irving, which occurred last night.

I only wish to tell you what a loss it has been to the Army.

It is always sad to have anyone die here otherwise than in action. In that event one always feels that it is a proper and glorious death.

Captain Irving died as gloriously as any man in the service ever died.

He gave all he had. The amount of work he accomplished here, in the design and adoption of his methods in mining and shelter dugouts, which are the only life savers when batteries are registered by the enemy, was beyond calculation.

He worked himself to death, and in the face of opposition proved that he was right, time after time.

We all remonstrated with him, at his hours of work, but his devotion to duty, as he conceived it, lowered his vitality, and pneumonia following a bad attack of the so-called Spanish Grippe cut him down.

When I tell you that since he was taken ill, the Personnel Department has been over the records of over fifty men trying to find someone to take his place, without success, you can appreciate his value to the service.

If you can let any of his friends know what we, his close associates here, feel about his loss we will appreciate it.

No one here has done more for the United States than he has.

Sincerely,

EVARTS TRACY.

On Sunday, August 4, services were held at St. Paul's Chapel, Columbia University, to honor the memory of John Duer Irving. His fellow associates at the University and in New Haven, and in the American Institute of Mining Engineers and other organizations, attended. Professor Kemp made the principal address and this may be found printed in full in the *Engineering and Mining Journal* for August 10, 1918. An appreciation by Waldemar Lindgren appears in this same number. They should be read by all the friends of Irving. Nothing could be more sympathetic and finer in tone.

CHANGES OF ADDRESS.

Addicks, Lawrence.....	6 Church St., New York
Dorr, J. V. N.....	101 Park Ave., New York
Laird, George A...Henry L. Doherty & Co.,	60 Wall St., New York
Lindberg, C. O.....	1211 Hollingsworth Bldg., Los Angeles, Cal.
Loring, W. J.....	614 Crocker Bldg., San Francisco, Cal.
Newcomb, C. Seymour.....	101 Park Ave., New York
Queneau, A. L.....	The Quay, Wallsend-on-Tyne, England

PERSONALS.

Howland Bancroft and A. P. Rogers are assisting H. Foster Bain, assistant director of the U. S. Bureau of Mines, in the investigation of tin resources.

Frederick Bradshaw's name is mentioned editorially by the *Mining and Engineering Record* in his connection with the Belmont Surf Inlet Company, Ltd. In its issue of May 31, it gives Mr. Bradshaw, as general manager of this property, and two others, full credit for the present condition of the company.

R. W. Brock, who has been in service with the Canadian forces with the rank of major, has been appointed geological expert for Palestine by the British government.

J. L. Bruce is a member of the committee recently created to work out an organization plan to insure the permanency of the American Zinc Institute. This committee, consisting of seven members, was named at a meeting held on July 29 and 30, in St. Louis.

N. H. Darton, during the month of August, has been continuing his investigations of the stratigraphy of the Red Beds in New Mexico for the U. S. Geological Survey. This examination is for the special purpose of determining what the prospects are for locating potash deposits. Mr. Darton announces that his work will carry him through September.

James S. Douglas, who recently returned from France, is now in Arizona.

Francis Drake has been elected honorary vice-chairman of the American Committee of Engineers in London.

A. E. Drucker announces that he has recently completed a series of leaching and electrolytical experiments on zinc-lead concentrates for the Consolidated Interstate-Callahan Mining Co. He states that, in these times of high transportation and smelting costs, electrolytic leaching may prove a way out for the zinc producers, in those cases in which the ores are amenable to this process and cheap electric power is available.

J. R. Finlay, who for many months during the winter and spring was a resident of Tucson, Arizona, has written an article on "The Southwest Copper Field" for the *Engineering and Mining Journal*.

B. Britton Gottsberger spent August on a holiday trip to the Pacific coast.

Herbert C. Hoover, who had been in England in the interests of the U. S. Food Administration, returned in the third week of August. While away, he found time to visit the American battle front in France.

W. R. Ingall's testimony, at the Hearings of the House Committee on Mines and Mining, with reference to the bill on "Minerals and Metals for War Purposes" appears in full in the July 6 issue of the *Mining and Scientific Press*. His name also appears as the author of "Spelter Statistics for 1917" in the *Engineering and Mining Journal* of July 27. In the same periodical, for August 3, the address of Mr. Ingalls before the American Zinc Institute is printed in full. His theme on this occasion was the "Benefits to be Derived from Close Co-operation of Zinc Mining and Smelting Interests in Helping Win the War."

Hennen Jennings, who is one of the consulting engineers of the U. S. Bureau of Mines, has been appointed head of a committee to regulate and allocate the use of platinum. Mr. Jennings is also a member of a committee appointed by the Bureau to investigate the present day production of gold.

J. E. Johnson, Jr., and Bradley Stoughton are giving the U. S. Bureau of Mines the benefit of their advice in connection with the use of manganese in steel production.

Frederic Keffer was recently in New York for thirty days, where he had come to examine a new method for the manufacture of nitrates and ammonia.

Frank H. Probert, who as already announced is devoting the summer months to the interests of the U. S. Bureau of Mines, is investigating the Newfoundland chromite situation.

F. A. Provot, according to the July number of the *Columbia Alumni News*, has registered at the Columbia Service Bureau in Paris.

Milnor Roberts reports that he has been acting as consulting engineer for the U. S. Bureau of Mines since June. He has been engaged in the examination of tungsten, manganese and chrome properties in the Pacific Northwest, and has been called upon also to cover some of the mining districts in Idaho.

Oscar Rohn is reported to have purchased the mines of the Boulder River Chrome Co., located in Sweet Grass Co., Nevada.

Forest Rutherford, is in Colorado making an examination of some large mining properties, and while there will attend the Colorado meeting of the American Institute of Mining Engineers. Mr. Rutherford, by the way, writes for the *Engineering and Mining Journal* of July 20th two short articles entitled "Experiments in Fettingling Reverberatory Furnaces" and "Blast-Furnace Plant for Smelting Copper Ore."

Franklin Wheaton Smith has been recently in Grant County, New Mexico, examining mining properties.

J. E. Spurr, who, as a member of the U. S. Shipping Board, has been acting in an advisory capacity on minerals, is now directing the investigation of minerals essential for war purposes, initiated by the U. S. Bureau of Mines. He is to be assisted both in the office and in the field by a numerous staff of prominent engineers.

B. L. Thane, who not so long ago visited this city, has an article in the July 27 issue of the *Engineering and Mining Journal* entitled "The Crisis in Gold Production—Congress must act."

Harry J. Wolf, in the latter part of July, made a professional trip to Saguache County, Colorado.

MEMBERS OF THE SOCIETY WHO HAVE BEEN CALLED INTO THE SERVICE OF THE U. S. GOVERNMENT AND THE ALLIED ARMIES.

Lawrence Addicks.....Member, U. S. Naval Consulting Board
 Ralph Arnold.....Member, Board of Tax Reviewers
 Percy E. Barbour.....Capt., Reserve List, N. G., N. Y.
 Edwin S. Berry.....Capt. 27th Engineers, O. R. C.
 Reginald W. Brock.....Major of Canadian forces
 Alfred H. Brooks.....Major of Engineers, O. R. C.
 Gelasio Caetani.....Capt., 1st Reg. of Engineers, Italian Army
 M. F. Chase.....Dir. Explosives Division, War Ind. Board
 J. Morgan Clements.....Bur., Foreign and Domestic Commerce
 Welton J. Crook.....Officers' Training Camp
 Benedict Crowell....Major, Eng. O. R. C.; Asst. Secretary of War
 W. B. Devereux, Jr.....Capt., Aviation Section, S. O. R. C.
 J. S. Douglas....Maj. and Dir. Warehouses, American Red Cross
 Francis Drake.....British Aircraft Production Department
 A. S. Dwight.....Major, 1st Res. Engineers, O. R. C.
 Baird Halberstadt....Fed. Fuel Administrator, Schuylkill Co., Pa.
 W. L. Honnold.....Am. Dir., Com. for Relief in Belgium
 Herbert C. Hoover.....U. S. Food Administrator
 D. C. Jackling.....Dir., U. S. Explosives Plants
 Donald M. Liddell.....Capt., Aviation Section, Sig. R. C.
 Halstead Lindsley.....Major, Ordnance R. C.
 Charles W. McMeekin.....Major of Engineers, O. R. C.
 C. H. Macnutt.....Lt. of Engineers in Canadian forces

MINING AND METALLURGICAL SOCIETY OF AMERICA

B. Magnus.....	Capt., Engineer Reserve Corps
W. W. Mein.....	Assistant to the Secretary of Agriculture
C. W. Merrill.....	Div. of Chemicals, U. S. Food Administration
H. G. Moulton.....	Engineer, War Industries Board
Seeley W. Mudd.....	Col. and Asst. Dir., U. S. Explosives Plants
O. B. Perry.....	Lt. Col., 27th Engineers, N. A.
Joseph Hyde Pratt.....	Lt. Col., 105th Engineers, N. A.
A. L. Queneau.....	Officer Interpreter, French Army
M. L. Requa.....	Chief of Oil Div., U. S. Fuel Administration
Edgar Rickard.....	U. S. Food Administration
A. P. Rogers.....	Materials Dept., Signal Corps
W. L. Saunders.....	Chairman, U. S. Naval Consulting Board
Millard K. Shaler.....	Hon. Sec., Com. for Relief in Belgium
J. E. Spurr.....	U. S. Shipping Board
S. C. Thomson.....	War Export Board
Arthur L. Walker.....	Con. Met. to Chief of Ordnance, U. S. A.
William Young Westervelt....	Chairman, War Minerals Committee
Pope Yeatman.....	Chief, Non-Ferrous Metals Sec., War Ind. Brd.

DIED IN THE SERVICE OF THEIR COUNTRY.

William Hague.....	January 1, 1918
J. D. Irving.....	July 20, 1918

Mining and Metallurgical Society of America

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ANNOUNCEMENTS.

New York Section.—A meeting of this Section was held on Thursday, September 5, at the Columbia University Club. No early announcement of this meeting was possible because it was called on short notice, by H. H. Knox, the chairman, to give members of the Society an opportunity to meet Mr. C. W. Purington of the American Committee of Engineers in London, who only recently resigned as its honorary chairman, and whose stay in New York was of uncertain duration. Mr. Purington is on his way to the Far East, both for personal business reasons and as consulting engineer to the U. S. Bureau of Mines. A full report of this meeting appears on another page of this issue.

Originally, it had been simply the intention to honor Mr. Purington with a dinner, the participants of which were to have been almost entirely associate members of the A. C. E. L. resident in and near New York, but happily Mr. Knox came forward with a suggestion in time to make it feasible to hold a Section meeting, which would do honor to our guest and at the same time bring him in contact with a larger number of brother engineers.

Gold Medal.—Blanks to receive the nominations by members for the recipient of the annual medal for 1919 were mailed by this office just prior to September 14. To be effective, these forms properly filled out should be in the hands of the Secretary on or before October 14. They will then be turned over to the Gold Medal Committee, which will give full consideration to the nominees submitted and report its findings to the Council.

The personnel of the committee consists of E. Gybbon Spilsbury, Chairman, J. E. Johnson, Jr., and Bradley Stoughton. The award shall be for "Distinguished Service in the Metallurgy of Iron and Steel."

Distribution of Membership.—Except for those members who have been called to Washington for Government war service, a change of residence which in most cases can be regarded as temporary, there has been little change from last year, at this time, in the geographical distribution of the membership. The considerable increase in membership during this same period has not served to materially affect the apportionment of the membership among the districts as adopted by the Council on September 10, 1917.

The Secretary, therefore, hereby announces that the geographical distribution of the membership, as it appears on page 212 of the 1917 BULLETIN, will govern in the election of Councillors for the ensuing year.

Nomination of Officers.—On, or before, October 14, nomination ballots for candidates for the annual election of councillors and officers will be issued from this office. As the polls close on November 4, it is particularly desirable that prompt attention should be given to this matter.

In addition to the election of a president, vice-president and secretary-treasurer, councillors for districts 1-2-3-4, 5, 11 and 12 must be chosen.

Government War Service.—It will be recalled that the Society, represented as it is on the American Engineering Service board by the assistant secretary, is doing its share in the work of supplying the Government needs for engineering personnel. Thus, opportunity may often be open for members, whether of draft age or otherwise, who are receptive to war service. In general, the service rendered has reference only to those in line for commissions and civilian aide positions, or to the filling of the complements needed for training camps and schools.

The members of the Society should, however, know that, beside its activities in purely war work, the Secretary's office does from time to time assist in locating engineers, who are in search of situations or desire advancement, in civil life. It is to be understood that no attempt is made to conduct an employment bureau, but, by resolution passed in 1917 by the Council, the Secretary is empowered to render assistance in these matters when so requested.

This subject is perhaps particularly pertinent at the moment, because within the past two months a fair number of calls, both under the head of "positions vacant" and "situations wanted," have been received by this office, and considerable success has been met in giving the necessary help.

COMMUNICATIONS.

A. C. E. in London.—In reply to a letter from Mr. Huntoon, Secretary of the Society, the following communication has been received from G. I. Gay, Honorary Secretary of the American Committee of Engineers in London. It carries date of September 9.

Mr. Mitchell hands me your letter of August 14. We note with pleasure that Mr. Purington had the opportunity of lunching with you and Mr. Sturgis in New York. I am sure that Mr. Purington discussed in a general way with you our objects and ambitions. We found that as individuals we were making very little progress towards helping out in the War. It has developed that as an organized body our help has been slightly more effective and the value of certain of our members has been recognized by various governments with the result that we are losing our hardest workers by their being appointed by the government for special work. This is hard on the Committee as a whole but is a sacrifice the Committee is willing to make. Purington is an illustration of this.

Your generous intention of forwarding certain dividends for the financing of our Committee will be greatly appreciated by our members. It will be a great satisfaction to feel that we are working along the same lines as the American Societies.

From the time, last autumn, when this office became acquainted with the A. C. E. L., it seemed as though the war work of its members was, and would continue to be, of the first importance, and especially so to the United States because its active personnel is comparatively near to the fighting line. What, and how much, the Committee has been able to achieve, and what its future plans are, was detailed by Mr. C. W. Purington at the September meeting of the New York Section, the proceedings of which are printed in this BULLETIN.

As the letter above infers, the A. C. E. L. has received more or less the same treatment from those in authority in England as has been accorded to American engineers in this country by those in power. Nevertheless, persistency is apparently its own reward, and engineers, both as individuals and in combination, are gradually receiving recognition by their Governments.

The M. and M. Society is an official correspondent in New York of the A. C. E. L., and has endeavored to co-operate with the Committee at all times. Mr. Purington's visit has been an aid in cementing this relationship and in stimulating us to renewed effort to help win the war. Much of Mr. Purington's short stay in the United States has been confined to Washington, where his knowledge of Siberia has proved of real value to many of the departments and bureaus. In passing, it may be stated that, as a number of the members of the A. C. E. L. are experienced in the affairs of the Russian

Empire, the situation, both at the western frontier and in Siberia, has received close attention from the inception of the Committee.

The last paragraph of Mr. Gay's letter, quoted above, calls to mind that the A. C. E. L. has been entirely self supporting, its members being assessed whenever a shortage of funds has occurred. Although no direct request has been made, the Secretary is aware that contributions, however small, from engineers resident in the U. S. would be acceptable. The requirements of the A. C. E. L. in this respect are not very great, but nevertheless as its membership is small, the pro rata share to the general fund is considerable, and is in addition to the individual expense of the members in furthering the various undertakings of the Committee.

Government War Service.—The Secretary's attention has been brought to an article in *The New York Times* for Sunday, September 8, entitled "Swivel Chair Officers." Apparently, this article is inspired by an order issued by the War Department that all Class 1 registrants, under the new draft regulations, now on staff duty, shall be replaced by December 31, and, it may be added, that it has not been written in derogation of these commissioned officers—properly pointing out that most of them would prefer overseas service.

That, however, which will most interest the members of the Society is the inclusion in this article of the paragraph printed below, which is one of a number citing those organizations that have met the personnel requirements of the War Department.

The Mining and Metallurgical Society of America is not a large body, but a glance at the list of forty-one in the service shows that professional men of this class serve in many capacities. Major Benedict Crowell is down as Assistant Secretary of War, and Herbert C. Hoover is the United States Food Administrator. Here are Majors and Captains who are serving in numerous bureaus of the Government hastening the production of metals for war.

War Devastated Villages.—Supplementing the communication from A. H. Wethey, reported in the last BULLETIN, the following letter has been received by Mr. Ingalls, the President of the Society. As already announced, the secretary will be pleased to act as intermediary for those who may wish to contribute to the "Fund for War Devastated Villages."

August 7, 1918.

Dear Mr. Ingalls,

I see by the *Journal* that you are taking up subscriptions for the benefit of the Engineers serving in France. I enclose contribution to the good cause. Let me add that if I can be of any service to any of the boys while in Paris it would give me much pleasure.

While the above is my permanent mail address, I spend a good deal of time at the headquarters of the "Fund for War Devastated Villages,"

32 Rue Taitbout, Paris. Through the kindness of a French bank, the *Crédit Mobilier Français*, we occupy spacious premises above the new quarters of the American Chamber of Commerce (of which I am also a member). I enclose a leaflet giving the names of the officers of the "Fund," and under separate cover I am sending you two little books describing some of our work and activities.

I have recently received the *BULLETIN* of the M. and M. Society for May, and notice a paragraph about myself. The literature I am sending you will I hope prove interesting to you. The poor refugees from the German invasion are much to be pitied, and most of them are glad to be furnished with the bare necessities of life.

Apart from this I have also been helping Miss Getty in her work for the Blind. At 75 Champs-Élysées, she has established quarters carrying on an extensive printing place, and I have set up lots of type "Braille," the raised type used by the Blind. If any of our members are in Paris they may be interested to see the work carried on here. All the books published by Miss Getty, amounting to several hundreds of volumes a year, are given away gratis, to any one in need of such books for their blind friends.

I hope you are enjoying the best of good health, and with kindest regards, believe me,

Very truly yours,

A. H. WETHEY.

Minerals Control Bill.—Official copy of the "Hearings" before the Senate Committee on Mines and Mining on the "Minerals and Metals for War Purposes" bill did not reach the Secretary until the middle of this month, although these sessions actually closed as far back as May 29. That the Senate Committee was not at all satisfied with the bill (H. R. 11259) as passed by the House of Representatives is perhaps evidenced by the length of time over which the hearings were extended and by the number of prominent engineers who were called upon to make statements. At least, the hearings were apparently much broader in scope than those before the House Committee, and, as printed, make a formidable volume.

It has already been pointed out in the *BULLETIN* the share taken by W. R. Ingalls in these proceedings of the Senate Committee; among the others who appeared to assist the Committee will be found the names of Charles W. Merrill, George Otis Smith and Pope Yeatman.

It may here be noted that a redraft of the war minerals bill was introduced in the Senate on August 27 and again referred to the Committee on Mines and Mining. Later, it was formally reported to the Senate, accompanied by a report of Senator Henderson, chairman of the Committee. The measure, which has been all but rewritten, covers the same minerals as the House bill with the one addition of phosphorus. It however differs in its provisions quite materially from the latter, and is much curtailed.

War Industries Board.—In the same way as the Fuel Ad-

ministration recently began its "save oil" campaign, now comes a request from the Pulp and Paper Section of the War Industries Board to conserve paper. For the benefit of the members, the circular letter from this Section, together with a statement indicating the reasons why paper should not be wasted, is reproduced below:

September, 18, 1918.

To the Secretary:
Dear Sir:

The War Industries Board invites the co-operation of your association in its efforts to bring about economy in the use of paper.

Will you kindly notify each of your members that the Government expects him to make a substantial curtailment in his annual paper requirements. Only by doing this can the supply for essential purposes be maintained.

It is also suggested that a committee be appointed to formulate and recommend to your association specific methods of economizing in the use of paper.

It is important that immediate action be taken in this matter.

Have the members of your association advise this office of the steps they are taking in Paper Economy.

Kindly acknowledge receipt and keep this office informed of the results of your efforts.

Very truly yours,

E. O. MERCHANT,
PULP AND PAPER SECTION,
Paper and Economy Division.

DON'T WASTE PAPER.

PAPER IS ESSENTIAL! It has been placed on the priority list only on the express condition that all wastes be eliminated and every economy be practiced. In doing this the Government will use its best efforts to provide sufficient paper for strictly needful purposes but nothing more. Every distributor, converter or user of paper is hereby notified that the continuance of his supply is dependent strictly upon his observance of the rulings of the War Industries Board, one of which is that paper must not be wasted. Failure to comply with this requirement will lead to the withdrawal of any or all priority privileges, without which the supply cannot be maintained.

SEVEN REASONS WHY PAPER MUST NOT BE WASTED.

1. The government's requirements for all kinds of paper are increasing rapidly and must be supplied.
2. Paper requires a large amount of fuel which is essential for war purposes. A pound of paper wasted represents from one to three pounds of coal wasted.
3. Paper contains valuable chemicals necessary for war purposes. Economy in the use of paper will release a large quantity of these materials for making ammunition or poisonous gases.
4. Paper making requires both labor and capital, both of which are needed in war service.

5. Paper making requires transportation space. Economy in the use of paper will release thousands of freight cars for war purposes.
6. Greater care in the purchase and use of paper will save money. Your savings will help finance the war.
7. Strictest economy in the use of paper will prevent shortage.

War Industries Board,

B. M. BARUCH, *Chairman*,
By E. O. MERCHANT.

War Department.—From the Ordnance Department of the War Department, issued under date of August 23, this office has received a memorandum in reference to the establishment of a Board on Metallurgical Matters, for the coordination not only of the metallurgical activities of the Ordnance Department, but of those also of other War Department divisions and of the War Industries Board. Dr. G. W. Sargent of the Engineering Division is chairman, and among others the personnel of this board includes Messrs. L. C. Summers and William H. Smith, representing the War Industries Board and the manufacturers, respectively.

U. S. Fuel Administration.—From time to time, the Secretary receives serially numbered publications conveying orders and regulations of the Fuel Administration, but now, under the title of "Fuel Facts," a somewhat more ambitious pamphlet has reached this office. As it is published by the Educational Bureau, its principal object is presumably to carry first hand information relative to the fuel situation to the public at large.

The 60 odd pages of this publication are interesting and should go a long way in shedding light on the aims and purposes of an administration of fuel. The last few pages are devoted to the personnel of this organization.

OTHER SOCIETIES.

ENGINEERING COUNCIL.

In connection with the announcement made under this heading in the last issue in reference to a paper published by the Secretary of the Engineering Council in the matter of "Centralized Activities of National Engineering Societies," a memorandum has now been issued which describes "A Midsummer Mission to Engineers" made by Mr. Flinn in behalf of this movement. Seventeen cities in all, were visited, the itinerary ranging between Buffalo and the Pacific Coast, and the secretary reports a cordial reception everywhere.

War Committee of Technical Societies.—The 11th meeting of this Committee of Engineering Council was held on September

10, the M. and M. Society being represented by George C. Stone. The minutes of this meeting are of particular interest in that they report the recognition of the War Committee's importance in its special line of work by the General Staff.

It seems that a liaison officer has been appointed to the W. C. T. S. by the War Department, and that in the future this officer will act as secretary of the Committee. Furthermore, with the approval of Engineering Council, an office, in addition to that in New York, will be opened in Washington.

Another matter of consequence, which is disclosed by the minutes, is the establishment of an Inventions Section of the General Staff, which has taken over the investigation of inventions appertaining to the land forces, and which previously came under the jurisdiction of the Naval Consulting Board.

American Engineering Service.—The members of the Society will be glad to know that, thanks largely to the efforts of Lt. Colonel E. N. Sanctuary of the War Service Exchange, a more inclusive personnel branch of the General Staff has at last been organized.

It will be remembered that the War Service Exchange, closely allied to the Committee on Classification of Personnel, is a bureau of the Adjutant General's office, and that Lt. Colonel Sanctuary has been endeavoring for many months to make this bureau really a central agency for personnel requisitions, without regard to which division of the War Department issues them. This has now become a fact, and it may reasonably be hoped that hereafter the needs of the different departments for commissioned officers or high grade civilian employees will be met more efficiently and promptly. Let it be added that there can be no question as to how greatly this step will facilitate the handling by the American Engineering Service of requisitions for engineers.

Relative to this subject of the centralization of effort, it may be announced that the A. E. S., already representing the engineering personnel of the four large national societies, the American Gas Association and the Illuminating Engineering Society, has begun actively to bring other national and local technical organizations into line, and thus, as the file of experience records increases, the A. E. S. will more and more become the center of all information regarding engineers.

Beginning with April 1, when the A. E. S. headquarters were first actually established, up to September 1, the accomplishments of the A. E. S. may be considered quite encouraging. According to a statement recently prepared, it appears that, during these five

months, the names of something over 2,500 engineers have been supplied in reply to requisitions, which, to a very large degree, have been governmental. Other facts which this statement lists are also of interest, as indicating the number of personal interviews held, the amount of correspondence involved, the number of questionnaires filed, etc.

AMERICAN INSTITUTE OF MINING ENGINEERS.

One of the features of the recent Colorado convention of the A. I. M. E. was a memorial service for Dr. James Douglas, held in Colorado Springs on September 2. Sidney J. Jennings, President of the Institute, was the first to speak and he was followed by E. P. Mathewson, who attended as the representative of the Canadian Mining Institute, W. R. Ingalls, representing the Mining and Metallurgical Society, and in conclusion by T. H. O'Brien, as spokesman for the Phelps Dodge Corporation.

With this mention of the final tribute to the memory of the late Dr. Douglas, it should perhaps be noted that, according to the public press, a bequest of \$100,000 is made under his will to the A. I. M. E.

MEETINGS OF SECTIONS.

NEW YORK SECTION.

Meeting of September 5, 1918.

A meeting of the New York Section was held at the Columbia University Club on the evening of September 5. The members of the Section were called together with but little advance notice, by H. H. Knox, the chairman, for the purpose of greeting Mr. C. W. Purington, the honor guest of the evening. As is known, Mr. Purington was one of the prime movers in the creation of the American Committee of Engineers in London, and, until his recent departure from England, its honorary chairman, and it seemed but fitting that the engineers here should have an opportunity to meet Mr. Purington, and to receive at first hand any message which he might wish to deliver, for himself and from those engineers who are nearer to the front than our own.

Taking place in the summer months, the attendance of this special meeting was uncommonly good, and as Mr. Knox, who presided, had arranged an unusually interesting program, the participants without exception remained until adjournment at 11.15 p. m. The customary dinner, very informal in character, immediately preceded the meeting proper.

In addition to Mr. Purington, other guests present were: C. S. Ackley, D. W. Brunton, J. W. Colt, E. C. Cullinan, V. T. Gudkov and E. B. Sturgis. The following members attended: S. H. Ball, Capt. P. E. Barbour, R. M. Catlin, J. R. Finlay, L. D. Huntoon, A. F. Keene, E. B. Kirby, H. H. Knox, G. A. Laird, A. C. Ludlum, F. F. Sharpless, G. C. Stone and W. Y. Westervelt.

The Chairman.—Since this is the penultimate or perhaps the last meeting of the official year of the Section, it is fitting that it be devoted to a review of the part played in its chosen field of endeavor.

We of the New York Section from the beginning have sought to avoid duplication of effort but rather to supplement the activities of other bodies, to take up work where they left it off and to carry it on. And so, when a year ago the Section decided to devote itself to the application of general engineering knowledge to military purposes, it was determined to leave to other organizations the task of seeking data and formulating problems.

This task was assumed in this country by the War Committee of Technical Societies and in England by the American Committee of Engineers in London and we are particularly fortunate in greeting this evening the chairmen of both these organizations, who will I hope tell us of their activities.

As outlined by a circular addressed a year ago by your executive committee to the members, we undertook individually to consider such military problems as we might be competent to cope with and to seek information and stimulation from such specialists as might be induced to address us. Of the success or failure of this project I cannot pretend to judge, since the aim has been purely subjective. It has succeeded or failed with each individual member according as he has, or has not, received inspiration to work along such lines, but if your judgment be adverse I can only plead in extenuation the extreme difficulties encountered by your Committee—difficulties which have been many and fundamental.

In soliciting the co-operation of specialists, we have in the main met a friendly and sympathetic spirit but have attempted in vain to overcome their reticence often amounting to complete silence imposed by the Government on all its servants.

This general policy of reticence in regard to military devices is founded on the notion that to divulge the need for new methods or apparatus, or even improvements in the old ones, would be to aid the enemy. It has operated to deprive the army and navy of the assistance of multitudes of civilian minds eminently qualified to con-

tribute valuable service and the policy is, I believe, demonstrably mistaken.

In general, we know that the advantage of a new appliance introduced on the fighting lines by one belligerent is transitory since it would be immediately adopted by the other. Thus the trench helmet, the tank, the infantry gun, are only among the most conspicuous examples. Byng's tactics were improved by Ludendorf and his in turn were perfected by Foch. Each side is conducting a performance for the benefit of a critical but imitative audience on the other side of the trenches. Hence, it may be said that thought and ingenuity devoted to improvement along certain lines is wasted since it redounds as much to the enemy's benefit as to ours. This is indeed true under conditions of equality on both sides.

Let us however consider the case of inequality between the two sides. Germany has a monopoly of submarine activity. Therefore any man who proposed an improvement in submarines should be locked in solitary confinement for the duration of the war. On the other hand, the Allies hold a monopoly in submarine destruction, and improvements in this direction should therefore be earnestly encouraged, which means that all properly qualified persons should be given fair access to whatever information may be necessary to direct their ingenuity.

At the present time substantial equality between the opposing air forces on the western front appears to prevail and therefore a mechanical improvement on one side is immediately observed and imitated by the other, to the relative advantage of neither. But if it should be that the American ambition to dominate the air is destined to realization, then indeed any mechanical superiority will operate to our advantage in greater proportion than to the enemy, for it must be borne in mind that the military superiority of one opponent over another does not stand in the ratio of their respective physical forces but is greater. Thus, when a fleet at sea engages in battle with another of half its strength its chances of victory are not as two to one but in a much greater ratio, perhaps ten to one.

In short, the principle may be accepted that along lines on which we preponderate, or even expect to possess a decided advantage, improvement should be sought, since even though the enemy benefit thereby specifically he will be at a disadvantage relatively.

Again, we may take as an example the superiority in air forces at which we aim on the western front next spring. Let us suppose for a moment that our purposes are fulfilled and that when the spring drive opens the Allies outnumber the enemy in the air as two to one. Granting their machines to be equal and their personnel to be equal in every way it might seem that an improvement in the

materiel on both sides would operate proportionately. I do not think this would be true. It might be very much greater than two to one. Perhaps a two-to-one superiority on the Allied side might insure its ability to bomb the enemy while preventing the enemy from retaliating, and therefore any improvements in bombing planes or bombing methods would redound solely to the advantage of the side which possessed superiority.

However, that a change in the Government's attitude is discernable may be traced by contrasting the enforced reticence of Dr. Durand when he addressed us a year ago with the candid tone of his lecture recently delivered before a London audience, inviting the public to come to the aid of the air service by devoting itself to the solution of many problems which he stated with the utmost freedom. Another sign is the bulletins published by the Naval Consulting Board, but there remains much room for improvement and I believe that our guests will bear me out in this.

Those of you who have followed the activities of the American Committee of Engineers in London need no word from me to remind them of the admirable work performed by it under the leadership of its distinguished founder whom we delight to welcome this evening. It is my hope and belief that the attitude of our Government toward the great body of civilian technologists whose strongest ambition is to serve in this emergency will so change that it will soon be possible to establish local committees, which will emulate the fine example set by the American Committee of Engineers in London under the able chairmanship of Mr. Purington.

Mr. Purington will tell us something of the activities of the Committee which he has evolved, inspired and directed, and I am sure that it will be of much interest to ourselves as an example of a fruitful line of work.

Mr. Purington.—Gentlemen, before I say what little I have to say I will ask Mr. Sturgis to kindly read a telegram. It is a matter of absolutely present consequence, and I would like you to decide whether I have taken too much responsibility on myself in sending this telegram, which I did night before last.

Mr. Sturgis.—Mr. Chairman and members: This is a confirmation of a telegram sent by Mr. Purington on September 3, 1918, to Prof. Thomas G. Masaryk, 2400 16th Street, Washington, D. C.:

On behalf of the American Committee of Engineers in London and our associates in New York, the Mining and Metallurgical Society of America and the War Committee of Technical Societies, I beg to extend to you and the Czechoslovak nation our sincere congratulations on the recognition by the United States Government and our heartfelt sympathy with the noble efforts which your people are making to combat Prussianism and Bolshevism in Siberia. (Applause.)

Mr. Purington.—Mr. Knox has put the thing altogether too strongly when he said I founded the American Committee of Engineers in London. It was talked over in our office, as I remember, between Mr. Waite, Mr. Cautley and myself and we almost immediately got the co-operation of several other men, and I desire to put the case clearly here so that you may understand it. It did happen that Mr. Waite and Mr. Cautley and myself were the only men present at the first meeting, so I think in a way it was founded by us. I don't remember whose suggestion it was, but in any case we were the first three men who talked it over, and although it is an idea anybody would think of, we happened to get together first.

Now, I thought it might be of interest to tell of the personnel of the more active members of this Committee and of some of the more important plans. It is not quite fair to some of the earlier members of the Committee that they should not be known to you more fully as regards their activities during the first two months after America's entry into the war. From the third progress report, issued in February last, you will have remarked that Messrs. Waite, Cautley and Purington are mentioned as initiators.

Waite is a Harvard man and, although an American, enlisted with the British troops in France in 1914, was incapacitated and honorably discharged, and is now making electric steel furnaces in England.

Cautley is a mining engineer, associated with Mr. R. Tilden Smith in London, and a British subject. So you can see that, from the very start, we didn't confine our Committee to Americans only but at discretion asked a few British subjects and some Russians, and we also have one or two French citizens on it. Beside the above, there are:

Mr. Poland, the present director of the C. R. B. in London and Col. Boyle of the Canadian Militia, who built dredges in the Klondike some years ago.

Mr. Shaler, an old Geological Survey man, who is now on the Commission for Relief in Belgium.

Col. Hunsiker, who represents American steel interests in London.

Mr. I. N. Dessau, a Russian railway engineer.

All these men were very active in the first stages. After the first two weeks the membership increased so rapidly that detailed mention is difficult. I might say that with hardly an exception all of the members who are now on the list (and there have been very few resignations—three or four men have resigned through excess of duties in other ways or because they went away), comprising

fifty or sixty resident members, and some associate members in other countries, have most willingly given their time, and in some instances their own money, in getting up any particular plan which the Committee may have initiated or in working on problems submitted by some of the Government departments. I am satisfied that there are very few of the men, if any, who would not equally have devoted the time had they been able to spare it. In many cases, specialists in many lines of engineering have given valuable opinions and technical data for which they would have been paid fees in private life. I will just read the names of a few of the men so that you will get an idea of what the men do. We issued a list, I think, over a year ago giving the occupations of some of the men.

Benenson is a Russian and director of the Russian and English Bank; a very prominent man in London.

Burton is manager of the underground railways—an American.

Clarke is an American on the technical staff of the Eastman Kodak Co. in Europe and seems to be a very good man on optics. He has been extremely active and extremely enthusiastic, and has done a good deal of work for the Committee.

Drake is a South African mining engineer who is back in London now and has been extremely willing to work at any time. In fact, he practically compiled this third progress report—did all the hard work.

Fifer is a railway engineer, a civil engineer—a Yale man.

Gay, who is on the Commission for Relief in Belgium, is a statistician and engineer, and is at the present time secretary of the A. C. E. L.

Hamilton is an electrical engineer.

Hooper is a British mining engineer.

Holm is a timber man, who has quite a big timber business in London and who is always our refuge when we want to know anything about wood pulp or timber.

Hough is manager of the J. G. White Co. He has been extremely helpful to us.

Humbert has worked very hard indeed, especially in the early days of the Committee.

Mr. H. H. Knox I need not refer to except to say how valuable his letters have been to us, coming to London from across the water.

Meurling, who is a Captain of the Canadian Machine Gun Corps, is a Swede by birth, and to show you what kind of a man he is—we had a letter from him recently in which he said his Machine Gun Corps had killed one thousand Germans and he hoped that it would kill ten thousand before he wrote the next letter.

Miller has worked very well indeed on certain problems we have given him. He is at present in this country on a special problem connected with the radiumization of soils.

Our friend Mr. Keene, who is with us tonight, has helped us a great deal on the platinum report.

Lawson is a shipping man who happened to be in our office.

Mr. Martens is one from whom we have had a great deal of Russian information.

Martin has helped us a great deal on aeronautical problems.

Peacock, who is an artist, a portrait painter, has, curiously enough, been the author of one or two of our most interesting ideas, which I will refer to later.

Petithory is an electrical engineer, a specialist on telephony, who has been a great deal of help.

Plunkett has, with Mr. Kelsey, given us a great deal of help on a printing and auditing committee.

Poland, of the Commission for Relief in Belgium, is also a railway engineer.

Sheldon is one of our best helpers.

Robinson Smith, whom I will speak of later, is the very best man we have on anything relating to propaganda and has worked the hardest on the problem of crippled soldiers.

H. A. Titcomb is a mining engineer, whom I regard as one of the best men we have.

Lanchester is one of the best air authorities.

Quinan, who is an assistant on *The Mining Magazine*, has done splendid work on the problems given to him.

Chevillon has been helpful in everything relating to Paris and did special work, when I was there recently, which I shall refer to later.

Stines, who is now in Stockholm, was instrumental with Mr. Draper in bringing over the platinum, and, although we cannot as a Committee claim the credit of that, we are certainly proud that two of the men who were instrumental in bringing the platinum out of Russia were members of the Committee.

Messrs. Boyle, Poland and Purington formed a committee to wait on Mr. Page in May, 1917, to explain and plan for the reorganization of the narrow-gauge military railways at the then Russian front. The Ambassador warmly approved of our plans and the formation of the committee. The first proposal, in what was called Plan 1, was for Boyle, Poland and Purington to proceed to Petrograd, but for personal reasons, principally lack of finances, Boyle elected to go alone, accompanied by his secretary, and paying his own expenses. The further history of this plan you are familiar with. Poland and Messrs. Burton and Agnew of the London Underground Railways, gave a large amount of time to the preparation of the specifications for 1,500 tons of railway material, after Col. Boyle's general suggestions and requirements had been received, and the detailed lists still remain in the A. C. E. L. files in London.

This was a large and very carefully thought out scheme for installing something like one hundred mobile repair units for the narrow-gauge railways to be used for transporting military supplies at the actual Russian front, on the same system that Col. James McDonald, and one or two of the other Canadian contractors from the Northwest, had used on the Canadian front, and is the scheme which was finally adopted, as I understand it, for the whole British

front. Boyle was very familiar with the work that had been done, and volunteered to do the same thing for the Russians. Both Boyle and Kenally, his secretary, received decorations from Gen. Korniloff, and Boyle was about to be put in charge of all transportation at the Russian front when the revolution broke out.

We couldn't get any satisfaction at the Russian Embassy in London and, before it made any decision, the revolution broke out. We had actually earmarked the ship which was to take the stuff to Archangel, but we could do nothing, and thus all that remains of that project are these detailed lists, which may have a certain value in future Russian affairs but which at present remain in our files in London.

We have recently learned that Col. Boyle is at Kishinev, in Bessarabia, which was a part of Little Russia, but, as I understand it, has now been ceded to Roumania. Boyle remains there with a nervous breakdown. He has done a great deal for the Roumanians within the past three or four months in dealing with the Bolsheviks and in getting a lot of prisoners back from Odessa, and I am informed that the Roumanians hold Boyle in the highest esteem and will do anything in the world for him. We hope that he is all right, but we have had no direct information as to that. I believe however, that it was confirmed by the British Foreign Office, which got the information from Dr. Tacknowski, and that this information has been sent to Boyle's son in Dawson, Y. T.

I propose, on account of the lack of time, to refer only to the plans of direct military value which the Committee has tried to forward, because if we went into the reconstruction plans it would take too long.

As you know, several reconstruction measures have been formulated and are in various stages of progress, and let me say right here that we hope to make the American Committee of Engineers in London a permanent committee, because there will be so much reconstruction work to do after the war that I think such an organization could be of equal value then as it is at present—perhaps more, because we would be much better organized.

Perhaps the earliest thing of all that was done, was the listing of the metal companies in the United States. All the technical journals were taken and every name that was subject to the slightest suspicion was blue-pencilled—I refer here to all the firms advertising in the American technical mining papers. This list was sent through the Consul-General in London to the State Department for investigation. We never heard anything more about it but we hope that it had some effect as regards the action taken about alien property.

The plan of Messrs. Peacock and Titcomb for an astigmatic telescope fitted with a lens through which only vertical lines were visible was completed. This was tried out by the British Admiralty on actual submarine periscopes and the instrument was presented to the department, together with such descriptions as were necessary, and was acknowledged. As is usual in such cases, we have never heard what was the result, but it was shown at the Committee meetings and Mr. Titcomb informed me that the trials were quite successful, and that even some of the seamen who were on the lookout for periscopes were compelled to admit it had some value.

Inquiry No. 12 indicates what practical help the American Committee of Engineers in London can occasionally be to the United States. Here, an especially large requisition for building material in England for war construction was referred by the Consul-General to our secretary and we were told it was a hurry-up order. That was referred immediately to two or three members by telephone and Mr. C. W. Hough at once got on the job and I believe that inside of forty-eight hours all the material they looked for was found in England. That illustrates the value such a Committee can have in the way of a clearing house. We could get at the right man at the right time.

Plan No. 8 on the question of metals of war importance: The Committee has made reports under several different plans but we finally tried to segregate under one plan on platinum, tungsten, molybdenum and graphite, and especially dealing with foreign sources of supply. The report, for example, on the platinum situation in the Urals, which was a project for also increasing the output from that source, was forwarded to the National Research Council in Washington in August, 1917, and to the Raw Materials Division of the Council of National Defense on December 15, 1917. Acknowledgements were received from H. W. Coffin, Mr. Durand and Dr. Summers under date of January 4, 1918. On my recent trip to Washington last week I found that the subject of platinum has been the subject of considerable investigation and curiously enough in the Bureau of Mines this report had never been heard of, and so I have done my best to let them know where it is. Our report was the result of considerable direct observation and it should be in the hands of the platinum committee at this time.

Plan 21: Many anti-submarine devices have been received under this plan. When we began to receive these we formed a sub-committee which we hope will be permanent: Messrs. Hough, Titcomb and Burton. As a result, out of I should say thirty or forty inventions that had been received, to my knowledge, about seven or eight were forwarded to the proper department of the British Admiralty.

As a matter of fact, one or two members of the Anti-Submarine Department of the British Admiralty were working in conjunction with our Committee for some time. These projects were received in a very cold manner, simply a formal notice received in acknowledgement of them, but that doesn't discourage us because we know that is the regular procedure, and we never expect to hear any more about them. I might say that one or two devices of this kind have been submitted by us to the Scientific Attaché of the American Navy, a position which did not exist at the time that the sub-committee was formed. This sub-committee was created in May or June, 1917, and for the first six months our only place to submit them was the British Admiralty, but now Prof. Bumstead and Mr. Farnsworth compose what is known as the Scientific Department of the Naval Attaché's office at London and they are very receptive. I must add that up to the time of my departure, the relations between Prof. Bumstead and our Committee have been very close and cordial, and I think considerable assistance has been given this Department, and we are very glad to find a channel to put these inventions through where they are sure of getting a hearing.

Aerial Photography: This is one of the points on which we have been able to give direct help to the Scientific Attaché. We turned this matter over to Mr. Clarke and allowed him to select any assistants that he chose from the Committee. This was at the specific request of the Scientific Attaché, and I understand that Mr. Clarke has been of great help to Prof. Bumstead in giving advice on aerial photography.

Perhaps the most comprehensive plan elaborated under the Committee's auspices has been the least referred to. It was prepared almost exclusively by two members, practically by one—Mr. Titcomb—at an expenditure of over three months of his own time, working I should say night and day in great part, and meeting the entire expense of preparing the report. The report relates to the German iron ore industry, with especial reference to the bombing of all surface plants, head frames and pumping plants, of the Minette district of Lorraine. It was supplemented by a report of Mr. F. W. Lanchester stating the number of planes required and where they would have to start from. This report was most elaborate and included working drawings and quotations from German documents, and the surprising fact develops that 80 per cent of the German iron supply comes from the small area, about one-half the Metropolitan District of London, situated within sixty miles of the then battle line. This report has been submitted to all the proper departments of the various Allied Governments and the latest information, as I left London, was that the plan would form a part of the Allied air

program for the near future, i. e., the bombing of the head frames and the pumping plants especially of these iron mines, in order to put out of business as much as possible the German iron ore supply from the Minette district.

Our Committee has not attempted to deal in detail with the general subject of aeronautics, recognizing as it does that a committee of this kind cannot contain specialists, because most specialists are absolutely tied up with some one of the official departments and can do no outside work. Finally, therefore, after a great many efforts to get in touch with the British Air Board and the American Aircraft Board, and so forth, we decided to refer everything to Mr. F. W. Lanchester, who acts as advisor and, as occasion requires, selects any members to act with him as he may want. What little we can do in that line can be done best in this way.

We have a standing committee on Trench Warfare Devices. I forget exactly the make-up of it, but Capt. Meurling is on that committee and we have asked him to give us what suggestions he can coming directly from the front, and of course as time goes on we can get more and more men to do that. For example, Major Nissen has made several suggestions of things that they really need. Theoretically a trench warfare committee of that kind should be of real use over there, but, curiously enough, we haven't received very many suggestions. We should certainly appreciate more of them.

Before I come to the most recent activities of the Committee, I must refer to the Propaganda Department, which has been as I say in the hands mostly of Mr. Robinson Smith, and he has proved himself a very enthusiastic and a very able worker. You will recall that so far as reconstruction measures go, the project of crippled soldiers was taken up by the A. C. E. L. over a year ago; in fact, it was shortly after America entered the war. We had seen the mistakes of England and we tried to put our suggestions before the American manufacturers as clearly as possible, and to show what they would cost, so that they might be prepared to take a certain number of disabled men into their factories, instead of having the men put at basket-making and toy-making, and other side issues, such as was done for the first two years in England. But your Society has worked on that very hard with us, so that I need not refer to it further. I might however say that Smith has worked harder on it than anyone else, although Waite was the originator.

As regards propaganda, Robinson Smith's pamphlet, "The Evidence, or Convicted out of Their Own Mouths," was published both as a pamphlet and in the English edition of *The World's Work* for March, 1918, and it is a very good summary, up to that time, of

the German frightfulness; German barbarities were classified under headings, and under dates, right back to the time of the Romans. It struck me as a very graphic presentation, and I might say that we received a letter from our friend Mr. Hamshaw, who works out in Idaho, that showed the highest appreciation. He said that some of his friends, after reading the article, went to Seattle and started to work in a shipyard for \$3.00 a day, although they all were wealthy. At any rate, it is the sort of thing that Smith excels in, but he also keeps busy all the time on his classification of the industries, and things of that kind, which, although it may seem a very long shot, is certainly sound. He classifies the various industries and places all the classifications under one general system.

I saw the need of something of that kind when I was in Washington on my last trip, because within a comparatively small area of activity, you might say the working area of Washington today, there is such an immense number of documents coming in that thus far the classification hasn't had time to keep up with the material. I needn't dwell on the fact, because every man in this room knows it as well as I do, that reports and maps come into Washington which go to one department, but that there will be parallel motion going on in another department which may be only half a block away from it. Frequently, the same material is wanted in two different departments, and, though it will be in one department, the other department will not know that that material is available, and will go to great expense and trouble to get it from perhaps half way around the world. Now, on such a job as that, a man like Robinson Smith would be invaluable, and could they have fifty men of that type in Washington working to systematize things it wouldn't be lost motion. It would be worth money to have a card-indexing system, and a cross-indexing system, from which a staff could immediately tell the applicant what particular document was in Washington, and which ones were not, and whether there were duplicates of reports, etc., in two or three different departments.

We have also taken up several Y. M. C. A. measures in London. Without trying to do Y. M. C. A. work, certain measures of assistance to the soldiers which particularly concern the amusement side have been undertaken, and certain overtures have been made to the proprietors of the London Opera House to make a big soldiers' club out of it. As soon as the idea is far enough advanced we shall turn it over to the proper department.

Now, as to what we have been working on recently: The Committee has done a great deal on the Russian problems, because we really started out to try to help the Russians. I presume that you're familiar with the fact that the activities which we classified under

Resolution No. 6 started before Christmas of last year. Now, I might say that I personally wrote out a form of telegram which I thought should be sent to President Wilson on December 6. I forget exactly what the event was that determined me. It was some event of that time in the Russian revolution which caused me to think that it was the right moment to start intervening and to start it quickly. I took this draft of telegram, recommending intervention in East Siberia, to Mr. Skinner and asked him if he could see his way clear to send it to President Wilson, of whom he is a friend. I asked him to send it either officially or unofficially, and he thought the matter over for a day and said he didn't think he could.

Then, we drew up the text of Resolution No. 6, and, although I haven't got the text of the resolution with me, I have got a summary, and to refresh your memory I will just read it out. It referred to the despatch of American railway experts to Siberia, was dated December 3, 1917, and was sent to President Wilson on December 22, 1917. The resolution urges the sending of American railway and organizing experts to Siberia, via Dalny and Vladivostok, accompanied by military forces to protect their activities, and with Japanese and Chinese assistance. Guarantee would be given that no after-war control is sought. A copy of this was sent to the Assistant Secretary at the time.

Well, as you all know, the Siberian intervention has at last come, perhaps in not so large a manner as some of us would like, but I think that the fact that it has come shows that we were correct in forecasting this situation at that time.

Now, as a result of that resolution, a much longer memorandum has been prepared, and was prepared, I might say, largely at the request of Lieut. Stacey, who is a friend of mine in London, but who is also a personal friend of Col. House, to whom the first copy of the memorandum was sent. Since then, I should say that perhaps seventy copies have been prepared, and I think fifty of these have been sent to different departments of the Allied Governments. Then, while I was in Paris, I personally discussed the situation on which this memorandum was founded with several officers of the French government, notably M. Franklin Bouillon, Chairman of the Committee on Foreign Affairs in the House of Deputies, also with M. Dinard, of the French Intelligence Department, and one or two other men whose names I can't recall. It seemed to excite some interest, although I had only a portion of it ready at that time. Since then, it has been elaborated, but I don't propose to read it to you, as I am going to leave a copy in the files of your Society. I will however give you an idea of what it consists.

The memorandum was written by C. W. Purington and Joseph

Okulitch, a Siberian citizen, who represents organizations totaling about three million peasants and which have 1,400 stores in Siberia. He does not speak English, but the material he contributes was taken down in Russian and translated. Mr. Deane P. Mitchell, who, as you know, had five seasons' experience in Siberia wrote the letter closing the memorandum. Well, I think I will confine myself, if it is a matter of sufficient interest, to reading the introductory page and Mr. Mitchell's letter, which closes the paper and which really summarizes what we have said in the earlier pages. It is dated June 18.

The following statements are grouped under headings, and as nearly as possible representing the views of the three men concerned. It will be noted that they to all intents and purposes coincide in this, that the imminent danger of German domination of Siberia is pointed out, and that it is not only the duty, but a *self-defensive* measure for the Allied Governments *at once* to send a *re-generative expedition* to Siberia to aid in the formation of the incipient *Siberian Republic*, and to crush the pro-German element, of which the bandits and ruffians who style themselves *Bolsheviki* form knowingly or unknowingly a part. By strengthening the hand of the Cossack, Peasant, and Mahometan Kirghese party in Siberia as far as and including the greater part of the Perm and Orenburg governments of the Ural, a firm and impassable barrier to further German incursion from the west will be raised, and a future ally in the shape of a Siberian Republic, strong in resources, unsurpassed in quantity and variety of raw materials, and possessed of a resolute and intelligent population will be the result. The alternative is appalling to contemplate, namely that of the German bureaucracy, inhuman war-maniacs styling themselves chosen of God, and whom the world regards with loathing and disgust, obtaining possession of a temperate belt of the earth's surface, twice the size of the United States, and self-supporting in every branch of human need.

The first part of the memorandum is by Mr. Okulitch and gives a resumé of Siberian cities and the number of Bolsheviks in each, the number of loyal Russian elements which could be depended upon, a description of the Kirghese Republic, which consists of three million people, and a proposed financial plan by which a guaranteed currency would be established. My own resumé points out, under various headings, the dangers which would occur should the Allies not take action in time. Then comes Mr. Mitchell's letter, which is so good that, if you will allow me, I will read it. The letter is addressed to Ensign T. H. Stacey, United States Naval Reserve; then stationed at Naval Headquarters in London.

Since my talk with you at Mr. Purington's home on Sunday I am informed by Mr. Purington that you would like me to summarize my views on Russia for the benefit of a friend of yours who may be able to rouse American opinion to the urgent necessities of the Russian situation. Therefore, without wasting any more words I will say that:

The motto of the Allies should be: "Re-establish the Russian Front."

If the Allies fail to attempt this by no means difficult job, they will be faced very shortly by a Russia over-run by Germany, and by Russian peasants in German uniforms fighting the battle of German Autocracy against civilization in France.

The Russian peasant will not do this from choice but from necessity and because his ordinary means of livelihood by tilling the soil is rendered impossible by the disorganization of the financial and transport facilities of his country. Said disorganization and its extent being at the present time absolutely controlled by Germany in her own interests.

The Allies seem to be laboring under the fatal misapprehension that they must support the Bolsheviks as the advance guard of Russian democracy, or the Duma as the representative of the Russian educated classes. This is a fatal misapprehension, because the true policy of the Allies is not to support any party in Russia until that party has established itself in power. In the meantime, the Allies should say to Russia; "The Germans have occupied large parts of your country with the intention of permanently enslaving you. The Germans are using your railways for their own purposes and without considering your interest.

"We therefore, being engaged in a war to the death with Germany, are occupying portions of your country simply to free you from German oppression and because we intend finally to destroy German Militarism and all that it represents."

This proclamation should be made to the Russian people coincidentally with a military occupation of Siberia as far west as the Ural Mountains at least, which should be carried out simultaneously from Archangel and Vladivostok. The first object of this mission which would be partly military and partly commercial, should be to occupy the Trans-Siberian Railway and thereby control the food producing regions of Siberia and ensure means of transport for troops and provisions. This must be accomplished before snow falls in 1918. Why? Because if it is not done the whole population of Northern Russia, which is normally fed from Siberia and South Russia, will be in dire danger of starvation in the winter of 1918-1919. This starvation will ensue because the poor fools of Bolsheviks, led by German knaves, have so disorganized the means of production and transport that Siberian produce cannot be transported in quantity to Northern Russia.

Germany on the other hand, *will not allow* any food products to be transported from Southern Russia. Thus Germany will be in a position to offer food to the inhabitants of Northern Russia, in exchange for military service, and she will get what she asks. Empty stomachs have no conscience or patriotism, even with educated persons, and the Russians are not educated.

The Allies can foil this German scheme and help Russia to her feet in the way I have suggested above, and I believe in no other. It is really a Red Cross expedition on a gigantic scale, with a military adjunct to maintain law and order, protect and establish lines of communication, introduce the commercial necessities of life and put Russia once more upon her feet.

The Bolsheviks should not be consulted about the matter, for they do not represent Russia. Germany will force them to protest against this Allied occupation, but they must be ignored for the sake of the Russian people. The scheme is a large one, but simple. It must embrace:—

1. A Military occupation of Siberia and Northern Russia.
2. The repair and maintenance of the railway lines in the occupied country.
3. The issue of gold basis rouble notes guaranteed by the Allies. These roubles will be issued to the peasants in exchange for their produce, flax, hides, wool, wheat, etc., at little above pre-war rates. At the same

time the peasant must be supplied with the necessities of life, cotton goods, boots, strap-iron, buttons, nails, canned goods, clothes, etc., at the same small rate of advance over pre-war prices. By purchasing their produce for real money and giving them the opportunity to buy what they need *with* that money, the expedition would not be so very costly, if a sordid argument is of any value. But this argument should not count, for all the food bought will have to be distributed, probably gratis, to the people of Northern Russia during the winter of 1918-1919.

4. The expedition must have considerable medical and sanitary side to deal with possible epidemics, to which the Russians, by reason of their ignorance and filth, are liable, especially during a period of starvation.

5. Propaganda should be kept in the background, on the principle that actions will speak louder than words, especially to empty stomachs.

My belief is that this course of action will result in placing Russia upon her feet as a military and economic power of considerable magnitude during 1919, and make certain of an early defeat of German Pretensions. I am sure that 99 per cent of the Russian people would enthusiastically welcome such a move by the Allies.

Also, knowing the Russians as I do, I am sure that if they were asked to pass judgment on this plan, no two of them would agree, either on this proposal or any other. Therefore it is necessary to face them with an accomplished fact, whereupon they will all agree, and become enthusiastic backers.

I shall hope to see you again the next time you are in London, when I may be able to give you some further information from some of our men in Russia.

Well, I do not think I have anything more to say, gentlemen, but I shall add one word. What initiative we have taken has been to try to reach where we think the spots are weak, and, although we have run up against a stone wall nine times out of ten, we have made some inroads, as I do think we have in the case of that memorandum, because I have seen, since I have been here during the last two months, that it has already had an effect. (Applause.)

The Chairman.—The highest possible praise of the fine work accomplished by these men of the London Committee is revealed in the cordial reception of their co-operation by the military representatives of the United States in London and by the British authorities. I hope that, when we have been at war as long as England has, our own Government will be as hospitable to such effort.

I now ask Mr. Brunton, the Chairman of the War Committee of Technical Societies, to tell us something of the further activities of his committee.

Mr. Brunton.—Mr. Chairman and gentlemen: I thank you very much for the honor conferred. I hadn't the slightest idea that I would be called on to speak and am afraid that I will disappoint you, as even with preparation I never can talk interestingly.

At the present time the situation is entirely different from what

it was when, at a previous dinner, I outlined to you the projected activities of the War Committee. Since that time our work has been so well received and recognized by the military authorities in Washington that we might almost say they have adopted us.

Several months ago the Ordnance Department appointed a liaison officer to service with us; and lately the General Staff has appointed one of its officers to permanent service as liaison officer with the War Committee and be given a hand in shaping its activities, so that it places our work in close contact with the military authorities.

In attempting to describe the work we are doing, the most important things we are engaged in can hardly be talked about even among ourselves because, as Mr. Knox very clearly pointed out in his address, a new invention is of no use except during the period we utilize it in advance of the Germans. If we start using a new invention on a small scale and try it out at the front the Germans find out all about it and soon use it against us. The only way that a new invention can be successfully used is as England utilized the tanks, viz., by cutting off from observation an entire plant and then when ready sending out a large, fully equipped fleet for use against the Germans before they had an opportunity to reply in kind. I hope this will soon be done in several other directions, but all that I can say tonight is this—that unless the war ends much sooner than we expect Fritzies will get what is coming to him. (Applause.)

Since the dinner at which I attempted to give you some idea of the program of the War Committee, one thing which we have done can now be publicly mentioned. We asked the British military authorities to detail Major A. D. Watts to service with the War Committee for a period of two months. The British government very kindly made this assignment, and we have utilized Major Watts' extensive and valuable experience during the allotted period to the fullest extent. I think, however, that Mr. Kirby could tell you more about this work than I can.

One of the things that Major Watts directed our attention to was that the American Army needed and was in position to obtain a larger proportion of engineers of the older and more experienced class, skilled in construction work and accustomed to handling men, than any army in Europe could possibly muster, and that it was extremely desirable that we should take advantage of this fact. In England and France the heavy construction work on railways, highways and canals was practically completed thirty or forty years ago. Here, in the United States, we are right in the midst of all kinds of extensive engineering development work and it is possible to pick up thousands of technically trained engineers, from thirty to fifty

years of age, who have had extensive experience in almost every class of constructive work.

Mr. Kirby and Major Watts went to Washington to interview the authorities, and while nothing came of the visit directly, very shortly afterward a call came out for two thousand engineers of the class mentioned, and I am glad to say that the Army has had extraordinary success in obtaining them.

Four or five months ago the General Staff organized what it designates an Inventions Section for the consideration of ideas, suggestions and inventions submitted for use in land warfare whether coming from the Army or from civilians. This department started with a few men without any advertising—without even issuing bulletins—and it has grown until it now has twelve technical examiners chosen from among the best specialists they could find in the Army, and a staff of fifteen clerks and stenographers. Of course, those men are in position to take any valuable inventions offered them to the department of the Army to which they belong, and are not only in position to take them there but to insist on having them tested, sometimes in the presence of the inventor. The work which it is doing is really wonderful; over 10,000 letters have been handled from inventors in the last four or five months.

The Naval Consulting Board also has a department for the consideration of all inventions relating to naval warfare, and at the request of the Secretary of the Navy it is moving the greater part of the Inventions Section from New York to Washington. The Naval authorities have given it excellent quarters in the New Navy Building and they hope before long to build an experimental laboratory where anything of value submitted can be developed and tested.

The Inventions Section of the General Staff has not yet reached the point where it considers the issuance of bulletins on problems to the members of the technical societies necessary, but it is easy to see that this is the next logical step.

A great many promising inventions come in which are not fully perfected, but if there is one chance of success in a hundred the risk of developing them is well taken. I have such an example in my mind now. A new magazine automatic rifle which can be fired from the shoulder and which will weigh only about nine pounds. It is something the military authorities have been looking for ever since the war began and is based on an entirely new principle which makes that light weight possible, but there may be some "bug" which will prevent its successful development. Now, we have been trying for several months to get that invention taken up and developed, and it was only with a great deal of finesse that we finally succeeded

in developing a plan to do it without trampling on somebody's toes. Of course, there are perhaps ten chances to one that some trouble will develop which will prevent its use, but if there is one chance in a hundred of success it is a legitimate gamble.

The same thing applies to at least ten or fifteen inventions which are now being developed. I can give you an instance of another one because its use is perhaps over for the present.

Six months ago, the War Committee conceived the idea that if there was a subterranean sound-ranging device by which sounds underneath the surface of the earth could be registered with the same accuracy as sounds on the surface (you know it is possible to locate the position of a piece of artillery five or six miles away within narrow limits by sound), it could make mining and counter-mining almost impossible because the workmen could be located as soon as they began operations and be blown up. We sent out this problem to perhaps twenty or thirty of the more inventive members of the War Committee and one of them came back with a very promising solution which, with the assistance of the Bureau of Standards, was immediately developed, but about the same time as the device was completed it was learned that both the French and the Germans had developed similar devices, and that subterranean sound-ranging had reached the point we had hoped for, and mining was no longer possible. Either side could locate the subterranean working parties of the other and head them off.

To give you another example, here is a problem which has just been sent out. You know that an aviator on a bombing expedition at night or sailing through fog or cloud is guided solely by his compass. Now, that compass must be placed where he can read it without turning around. That means it has to be placed under the cowl in close proximity to a big 400 H. P. engine with a powerful spark-generating apparatus. Behind the aviator is a big steel gasoline tank and underneath from a quarter to half a ton of bombs. You can readily imagine the amount of error in the reading of that compass under those conditions. If it were a marine compass on board ship it could readily be compensated, but a ship, unlike an aeroplane, does not turn over both sideways and endwise—and so there is a crying demand on the part of aviators for a compass which will correctly indicate their course when they have neither stars nor landmarks to guide them. You would naturally think that a gyroscopic compass could be used, but we have found that the gyrations of an aeroplane are altogether too much even for a gyroscopic compass. The natural thing to do is to place the compass somewhere where it will not be affected by engine, tank or bombs. If the compass is placed out on the wing or in the rear of the

fusillage it will indicate correct courses, but how shall it be read? That is one of the problems we have recently mailed to some of our originative specialists, and is a good illustration of the type of problems we are sending out. Eight or ten solutions of this compass problem have already been received, but they are all somewhat complicated, and we are hoping for some simpler and more rugged device.

One of the most encouraging things about the work of the War Committee has been the unselfish and patriotic offers of service from many of the largest technical laboratories of this country and from scores of our most prominent specialists, so that when problems of too confidential a nature for general distribution are received, we have a list of specialists in whose ability and loyalty and integrity we have complete confidence to whom such problems can be sent. We have already sent out many such problems, and the amount of work some of these men are now doing is astonishing, and forms one of the most pleasing features of the work on which we are engaged.

I suppose you all know that the Ordnance Department of the Army now has an Information Section which originated in this way: Before the war the Ordnance Department had less than 100 officers, and each one knew all about the specialties and hobbies of all the others. If one man in the department had a problem he could not solve he knew just where to find someone who could. Now that the Ordnance Department has expanded to over six thousand officers, this is no longer possible. To overcome this difficulty they have organized the Information Section in which the specialists are all card-indexed, so that questions brought to the Information Section can be promptly answered.

One of the things which has helped us amazingly is that, in a very early stage of the game, the War Committee was made the civilian branch of this department.

I have already taken up too much time, but I can assure you that the work of the War Committee is steadily increasing in volume and importance, being more and more appreciated by both the Army and the Navy.

The Army has appointed three liaison officers to service with the Naval Consulting Board and two with the War Committee of Technical Societies, so that we have a complete and uninterrupted exchange of ideas between the Army and Navy and the boards trying to serve them. (Applause.)

The Chairman.—Mr. Brunton has recorded a remarkable improvement in the receptivity of ideas from the outside. Many of

us will be curious to know, however, whether it has extended beyond organized research to the public. The problem which Mr. Brunton has suggested, that of a compass which shall be free from magnetic induction, is an interesting one but most difficult because of ignorance of the conditions encountered in flying. Suppose one were to seek to apply to the solution of this problem the electro-magnet as being more powerful than a steel needle. How is an electro-magnet going to act? Nothing on the subject has been published and the Government alone possesses whatever data may be extant. Is the Government prepared to impart such information to civilians and, if not, is there any hope that the day may dawn when it will be willing to take into its confidence all investigators who may prove their reliability and their competence to deal with such problems? Mr. Kirby perhaps might tell us whether provision has been made for this purpose, or whether it is likely to be made in the future.

Mr. Kirby.—Mr. Chairman, so far as this particular question is concerned, it is Mr. Brunton who can answer you most clearly, because he is in direct contact at all times with the General Staff down at Washington. The end we all hope to attain is the creation of machinery for obtaining problems directly from the front and distributing them to our members at their own homes. It is hoped eventually to have skilled observers placed at the front whose business it shall be to dig out problems, to ascertain the defects of present appliances and the purpose it is desired to accomplish, and then to have facilities for placing each problem so obtained before all the engineers of the country within say two weeks. That is the end for which we hope. Of course we are a long way from that, but Mr. Brunton has given you a general idea as to the chances ahead.

I might perhaps add a word or two upon one subject mentioned tonight by Mr. Brunton, namely, an important suggestion brought by Major A. D. Watts from the front.

We found Major Watts, a Canadian engineer serving with the British forces, to be very exceptional in his experience. He was educated for the army in the Royal Military College, the West Point of Canada, and was then for some ten years engaged in very active private engineering work, mainly hydro-electric installations, railways, etc. With the arrival of war, he had charge of the organization and equipment of two Canadian battalions and was then called upon to take charge of all the light railway construction in the Ypres sector, which has been notoriously the wettest, muddiest, and most active sector on the western front. He was there in charge of from 2,000 to 4,000 men, a changing force composed of every variety of British troops. With his combination of military educa-

tion, practical engineering experience and the most severe war experience to be found, all based upon an unusual foundation of common sense, Major Watts brought to this country ideas and problems of exceptional value and interest.

Mr. Brunton has referred to one of these—the problem of equipping the American Army with the necessary construction capacity. It seems that the British and French experience has shown up a singular defect in modern army capacity, one which had never been suspected before. In fact, the defect could not have appeared until the advent of this war, with its complete upsetting of precedents. For the first time in history, war became a business which was really mostly engineering and only to a minor degree military. The work of the forces at the front—I am not speaking of far back in the rear, but up in the shell fire zone—is incessant construction labor. It is digging, building, and construction and mechanical work of every variety upon a scale never before heard of.

I say never, with one exception, and that was in the Roman armies, particularly when they reached their highest development under Caesar. These armies were armies of workmen. The most singular thing about Caesar's campaign is that he handled an army of mechanics, who worked most of the time and only occasionally marched and fought. They did most wonderful things in a mechanical line. We have not read these things since we were youngsters, but if we go back today, with the mind of an engineer, we will see what really occurred.

Now, for the first time in history, that state of affairs has repeated itself, and armies today have become forces whose principal function is construction and mechanical work. Without knowing it, and almost unconsciously to the military men, armies have begun to function as enormous industrial mechanisms.

The German army, owing to its wonderfully perfected organization, resulting from that model of efficiency, the German Great General Staff, adapted itself promptly to this new state of affairs, whereas the other armies, those of our Allies, could not. The German army is remarkable in the quantity of work that it does, also in the quality, and in the promptness with which it is performed.

Now, armies in the past have had a certain fixed organization for doing their construction and mechanical work. This has been the product of long experience and was sufficient for the past. It comprised the aid of a certain proportion of non-combatant troops, for most of which the work was laid out by so-called engineer battalions (it is understood that "engineer" in military parlance refers to the mechanics and laborers who compose these engineer battalions,

and it is only their officers who correspond to the professional engineer of civil life).

Now as the construction demands increased, this non-combatant organization was increased and stretched as far as possible, but aside from the difficulty of getting experienced construction men in England and France, this expansion soon encountered a practical limitation. Within the zone 10 or 15 miles from the front, ground is valuable and the capacities of roads and supply facilities are overwhelmed by the needs of the fighting troops. The latter, therefore, had to be called upon for the increasing amount of construction work, and, if you know the spirit of the average soldier, you understand that there is nothing on earth he detests more than such work. He feels it to be something which properly belongs to other people. The difficulties due to this feeling are increased by the unfamiliarity of officers with construction work, and the impracticability of securing adequate supervision from overworked engineer battalions.

This is the practical condition which has to be met within the zone described. Back in the rear, non-combatants may be piled in without limit because they cannot get in the way of the fighting forces.

Now the suggestion presented by Major Watts, which has aroused interest among engineers here, and which is also awakening interest on the other side, is to systematically select a number of experienced construction men for training as military officers, and to distribute such doubly effective officers among the fighting organizations to the extent that is found desirable.

No country in the world has such a vast supply as the United States of construction foremen, superintendents and engineers. It should be easy to give such men officers' training, because of their practical experience in handling men. A good foreman, given proper military training, should make an ideal non-commissioned officer, while superintendents and professional engineers present valuable material for the creation of commissioned officers.

Such men have been taken from Canada. They don't exist any more in England and France, simply because these countries have been drained dry of them, and the United States is the only country that can furnish these men. The United States Army, therefore, is the only army that can supply the needed construction ability. (Applause.)

The Chairman.—It will round out the purpose of the meeting if the Assistant Secretary of the Mining and Metallurgical Society will tell us something of what the Society as a whole has accomplished along these lines.

Mr. Sturgis.—The Chairman has given me a rather large order. I should like however to emphasize the fact pointed out by the Chairman that we are here this evening to do some little honor to Mr. Purington, our guest, and to derive some inspiration from the achievements of himself and of his Committee, because it seems to me that, outside of the field which is covered by the War Committee of Technical Societies, there are some activities which have been explained to us in some detail by Mr. Purington, and which have no elements of secrecy, in which the Mining and Metallurgical Society might take a part, following where the American Committee of Engineers in London leads.

From the very first time that the office of the Secretary was informed of the existence of the London War Committee, I was, and I think that the members of the Society were also, very much impressed by what that Committee was doing, the more so because the Committee is comparatively small in size. There are, I believe, only sixty active and some thirty associate members, who were self-organized, under the auspices of the American Ambassador to England. They have taken hold and have replied to numerous inquiries received from the American Consul and other American officials in England, have offered suggestions, and have initiated war measures of many kinds, and they have done all this, by the way, entirely at their own expense, entirely by voluntary assessments. Now, frankly, I think that that is a very considerable achievement.

Unfortunately, as Mr. Purington has remarked, no one of these committees, or these organizations, can after all make much of an impression, or even receive a hearing, although, as also pointed out by Mr. Purington, there have been certain cases where what the A. C. E. L. had to offer did not fall on barren ground, and thus, I feel that this Society should make a real effort to follow in the footsteps of the American Committee of Engineers in London.

Only in two cases has the A. C. E. L. called on us for specific assistance. In one case, at least, the proposition was rather a large one and perhaps not practical at the present moment, but in the other one—the question of the crippled American soldier—we took hold and did all that was possible. It was rather a campaign of education, and I think the correspondence that the Secretary had with different officials in Washington, and with different organizations throughout the country which had been organized for the rehabilitation of the injured soldier, had some effect.

I do not believe that I have anything further to say, Mr. Chairman, but I should like to read a letter which I have received from Mr. Gay which shows the high opinion in which Mr. Purington is

held on the other side. I might add that Mr. Purington's arrival preceded this letter by one day.

July 30th, 1918.

Dear Mr. Sturgis:

Our Chairman, Mr. C. W. Purington is leaving for the far east via New York and Washington immediately. The American Committee of Engineers in London found it necessary to accept Mr. Purington's resignation as Chairman and have elected Mr. D. P. Mitchell as Honorary Chairman in his place, and Mr. Francis Drake as Honorary Vice-Chairman.

I know Mr. Purington has planned on calling upon you, and such advice as you can give him regarding closer co-operation between our societies would be welcome. I may add that Mr. Purington's fine spirit and resolve have been our inspiration, and he will continue to be our most active member though not in London.

I am sure that there will be a number of members of your society who will be interested to know that Purington will be in America for a short while—hence my letter.

Very truly yours,

AMERICAN COMMITTEE OF ENGINEERS IN LONDON.

G. I. GAY,

Hon. Secretary.

Mr. Brunton.—Mr. Chairman: I'd like to take a moment to reply to your questions. The Carnegie Department of Terrestrial Magnetism is splendidly equipped and will be glad to answer all questions that relate to magnetism. I ran across the aircraft compass problem on a recent trip to the different aeroplane plants in the country, but before sending out the problem I wanted to be able to give our inventors some definite information about the subject: as, for instance, how near to an operating 400 H. P. engine and its magneto could an aircraft compass be placed without interfering with its accuracy. The Bureau of Standards was unable to answer the question, but, immediately after it was propounded, sent an expert to one of the large aviation fields with orders to thoroughly explore the magnetic field, surrounding the engine, tank and bombs, so that it could state definitely how close to an airplane engine, gasoline tank and bombs, a modern compass can be placed without material deviation.

Regarding your other question, I think it is only fair to say that the new aircraft compass of the General Electric Company is a beautiful and convenient instrument—one that will stand any amount of vibration and abuse and still give reasonably accurate readings under favorable conditions.

The Chairman.—I thank Mr. Brunton for his reply to my questions, but I still wish it were possible that such information might become accessible to anyone interested in the subject, and I take it, from what he says, that it is not accessible to the public as yet. Is that not so?

Mr. Brunton.—I don't think it could be made accessible to the general public, but I am certain that the Carnegie Department of Terrestrial Magnetism, or the Bureau of Standards, will be able to furnish you all the data needed.

The Chairman.—I hope there will be some bureau established where any properly accredited person can obtain information, and I also hope the day will arrive when those problems will be divided into the two classes I mentioned, those which should be kept secret because if divulged they would give aid and comfort to the enemy, and those which might be publicly discussed on the ground that even if they were known to the enemy they could not help him. We have been concerned this evening largely with the task of directing the thought and ingenuity of civilian engineers toward military requirements, and it would be a fitting conclusion if we could have the example of a civilian engineer who has taken off his coat and gone to it and done something. Therefore I am going to ask Mr. Ludlum if he will tell us what he has done, or, if he prefers to put it so, what he has aimed to do, in the way of pushing pipes under the Hun.

Mr. Ludlum.—I haven't shaped up any formal talk on this subject at all, and I am rather reluctant to talk about it, inasmuch as the subject has almost buried itself in attempting to bore under ground. While our results have been successful, we have not succeeded in getting very far along in Washington, so I rather hesitate to say very much about the project, because I feel that it is almost next-door to a failure in so far as getting the machine in general use is concerned.

The Chairman.—Tell us how you push that pipe.

Mr. Ludlum.—We have succeeded, by using a 4-inch pipe, in pushing it a distance of 500 feet horizontally, and most of the time we have pushed it at a rate of from 8 to 10 and 12 feet an hour.

A Voice.—Through what?

Mr. Ludlum.—Through various kinds of ground. The 500-foot push was made through a fairly loose sand and gravel, down on Long Island, but we have pushed through a hard, compact gravel, which was almost like a poor concrete, and we have pushed 175 feet through that kind of material. The only reason we did not push farther was because the pipe deflected and came out of the ground in these experiments—and this led us to undertake to control or direct the course of the pipe, thus preventing the deflection, and thereby keeping the pipe on its true course.

This was quite an undertaking, but we finally succeeded in developing what we call the detecting or control head, namely, a controlling apparatus, which is very rugged and is mounted on the end of the pipe, and by which we detect the slightest variation in the course of the pipe, either up or down, or to the right or left. It notifies the operator that such deflection is taking place and also indicates the direction of the deflection and corrects it immediately as well. Therefore the operator knows just what is going on at the outer end of the pipe, and he can set it on a course and maintain that course throughout, either on a predetermined inclination or on a definite angle to the right or left.

The idea of the pipe pushing apparatus was inspired by the fact that the English government sent over requests to our engineer regiments, when we first entered the war, to the effect that each regiment should bring over about 50,000 feet of push pipe and some apparatus to push the pipe with. It sent sketches of machines which they were attempting to use, some of these having been made in England and some in France. In one of my visits to Washington, I was able to see some of these machines, and almost everyone else who has seen them agrees with me in the opinion that these machines are totally incapable of performing any serious work. They are not constructed along good mechanical or efficient lines.

The proposition was put up to us to construct some form of apparatus that would push the pipe, and we determined on a hydraulic jack for this purpose. This is nothing more than an annular or hollow jack, which surrounds the pipe, and is backed up against some substantial backing. It grips the pipe by a special gripping device, and it has a stroke of about 12 inches in length. It pushes the pipe into the ground for the length of this stroke, and the automatic grip releases the pipe and makes its return stroke, the gripping and the releasing of the pipe being done automatically. A small hydraulic hand pump, operated by three or four men, or a motor, furnishes the power for the hydraulic jack.

The most important detail of the whole apparatus is the construction of the pipe. The question always arises "How far can you push pipe?" and this is dependent not only on the nature of the ground, but on the strength of the pipe, which must be sufficient to enable it to withstand the enormous pressure required to push it through hard ground. Judging from our experiments, I think that, in comparatively easy sand and gravel, or a loam soil, we can push either 4, 5 or 6-inch pipe for a distance of 1000 or 1500 feet. When the ground is fairly hard or compact, the probability is that the limit would be reached in about 1000 feet, and in very difficult cemented gravel, probably in 500 feet.

The obstacles that we encountered were many, because it was practically a new field of exploration, but we have finally succeeded in overcoming all the mechanical difficulties, and have evolved a complete system that is extremely rugged and easily handled. Of course, the apparatus must be very compact, light and portable, so that the men can handle it in the trenches.

Since evolving this apparatus, word has come from the other side that trench warfare will be little known in the future, and it was suggested that no more trench mining apparatus should be sent over-sea. The various authorities in Washington, who had been very much interested in this apparatus before, lost interest as soon as this report was received, and we, ourselves, have lost interest in it, especially as we have some other work on hand which seems to be of more importance. Meanwhile, this apparatus rests, waiting for someone to realize the need for it. Of course it is up to the military authorities to prescribe their war needs over on the other side, and whenever they want this machine, they are welcome to it. We feel that we have done something towards helping out, and while the indications for its adoption by the Army are not favorable at present, we are still living in hopes.

I do not think that I can attempt to describe the apparatus itself any more fully than to outline it as I have here, because it would require drawings, photographs, etc., to accomplish this. However, if anyone is interested in this line of work, we would be very glad to show him drawings, or even the apparatus itself, as we are not attempting to keep it to ourselves or to handle it at all commercially. We simply approached it as an interesting experiment, and attempted to work out a problem, so as to help the country and without desiring to secure any commercial benefit ourselves. (Applause.)

The Chairman.—Gentlemen, are there any further remarks on the subject in hand this evening? If not, I think we may consider the formal part of the evening at an end.

Mr. Purington.—I would like to say one word. I think that the American Committee of Engineers in London would be very glad if it might be more in touch with such problems as Mr. Brunton has told us about. We may not be able to help, but we would, at the same time, be very glad to have them to study. I refer to such problems as the aeroplane compass. Several compasses have been submitted to us at various times, and, although I am not competent to judge of their merits, there are men over there working on this problem, and I feel sure that they would be glad to have a chance to co-operate with you in this or any other prob-

lems to which the War Committee of Technical Societies is giving attention.

Mr. Brunton.—We would be very glad indeed to exchange problems with you, and to work with you.

The Chairman.—Referring again to the control of this pipe pushing apparatus, is this obtained by black art or magic?

Mr. Ludlum.—It is done on the wash-boring principle, that is to say, the head end of the pipe has four nozzles or openings in it, located around the outside of the pipe on the four different sides of it, through which water is forced. The water is led from back in the trench to the head end of the pipe through a small pipe, situated within the larger or main pushing pipe, under a moderate pressure, say 100 pounds, or so, and is forced out through the nozzles or jets at the head end of the pipe, through either the top, bottom, right or left nozzle. This water, coming out from these jets or nozzles, will soften and wash the ground away on that side where the resistance happens to be, and the pipe will return to its original course when this resistance is removed. This is the method of correcting the deflection and bringing the pipe back to its original course. Even if a large boulder is encountered, the water will wash around it and soften the ground, and the enormous pressure exerted by the pipe, together with its rigidity, will soon push the boulder to one side.

The method of detecting the deflection is accomplished by the arrangement of a tail tube, which is about $1\frac{1}{2}$ inches in diameter and is situated within the 4-inch pipe and is anchored firmly in the head end of it. This tail tube projects inside of the larger pipe, and if the controlling head is deflected in the least by encountering a boulder or hard ground, as this $1\frac{1}{2}$ -inch pipe or tail tube is anchored solidly and rigidly at the front end, it is not bent, and the rear end of the tail tube is brought in contact with the outer pipe because it is perfectly free to move at that point. Thus, when due to a deflection of the larger pipe it moves over and comes in contact with the outside pipe, it forms an electric connection and immediately notifies the operator. This is the method of detecting a deflection.

Then, after the operator knows that there is a deflection of the pipe, the next thing is to determine which way that deflection is, and this is done automatically, by means of a valve mounted in the controlling head—a valve which controls the four ports or jets, and opens each one in sequence. A set of magnets controls the valve

and causes it to open one of the four ports, that is, whichever one happens to be indicated by the contact of the tail tube. If the pipe is being deflected to the right, it operates a certain particular magnet so that it will cause the valve to open the port on the opposite or left-hand side, and when the water is forced out through this nozzle, it washes the ground on that side which is deflecting the pipe. The ground being softened on that side, the pipe returns to its original position and corrects the deflection. All this apparatus is mounted in a small head, about 4 inches in diameter and 2 feet long; essentially, it consists of nothing more than the valve, the tail shaft, and the four controlling magnets which govern the valve in directing the admission of water to any particular port or nozzle.

We found a great deal of difficulty in bringing a wire, or electrical conductor, out through the interior of this pipe, as it was subjected to all kinds of strains and often broke. We soon therefore abandoned this method, and simply used the inner or smaller pipe which supplies water to the washing jets. This inner pipe being only $\frac{1}{2}$ inch in diameter, it was a simple matter to surround it about every six or eight feet with small wooden blocks or balls, and being thus really carried on these balls, it was prevented from coming in contact with the outer pipe—so that the inner pipe acted as one wire or electrical conductor, and the outer pipe acted as the return.

When working in average ground, the apparatus will keep three or four men busy connecting up pipe, as we can push pipe at the rate of from 25 to 30 feet an hour. This is really quite a remarkable result, when you consider that three or four men do all the work in attaining this rapid rate through fairly compact ground.

I hope that I have made myself clear, but as I said before, it is rather difficult to describe, and thus if any of you are interested and will drop in our office, we will be glad to show you all the details of this apparatus. (Applause.)

The Chairman.—I do not myself believe that Mr. Ludlum does the trick, although I know that he does it because I have talked with many men who have seen it—but I do not believe that he does it.

The meeting adjourned at 10:45 p. m.

F. F. SHARPLESS,
Section Secretary.

Addenda.—Although not a part of the proceedings of the New York Section meeting, it is manifestly fitting that the reply of Professor Masaryk to Mr. Purington's telegram of felicitation, read at the meeting, should appear here.

CONSEIL NATIONAL TCHECOSLOVAQUE
PRESIDENCE.

September 11th, 1918.

Dear Mr. Purington:

Hearty thanks to you and your friends: please forward my thanks to the societies you mention. Such good wishes will strengthen me in my work.

Yours most sincerely,

T. G. MASARYK.

Mr. C. W. Purington,
Amesbury, Mass.

In this connection, let it be said that the memorandum "Regarding the Necessity for Action by the Allied Governments in Siberia", prepared by Messrs. Purington, Okulitch and Mitchell, for the American Committee of Engineers in London, can be consulted at the office of the Secretary. This is the memorandum to which Mr. Purington referred in his remarks at the meeting reported above, and of which he gave an outline in part by summary and partly by extracts. It is not deemed essential to print this memorandum in full, and it is perhaps in any case over long for publication in the BULLETIN.

CHANGES OF ADDRESS.

Barbour, Percy E.....875 West 181st Street, New York
de Saulles, C. A. H. ...A. S. & R. Co., Equitable Bldg., Denver, Col.
Drucker, A. E.....111 Broadway, New York
Lachmund, Oscar...Canada Copper Corp., Ltd., Greenwood, B. C.
Stow, Audley Hart.....Bluefield, W. Va.
Weeks, F. D.....90 Howell Street, Canandaigua, N. Y.

PERSONALS.

Howland Bancroft, who, as recently reported, has been in Washington assisting H. Foster Bain in the investigation of the tin supply, returned to Denver late in August.

Percy E. Barbour has received a leave of absence from Governor Whitman, from his duties as Deputy Superintendent of the New York State Troopers. He has been appointed a captain in the Engineer Corps, U. S. A., and is now stationed at Camp Humphreys, Virginia.

O. M. Bilharz is interested in the manganese deposits situated near Batesville, Independence County, Arkansas.

R. W. Brock's portrait appears in the June 30th issue of the *Mining and Engineering Record*. It is included as a part of an article describing the Canada Department of Mines. Before becoming professor of geology at the University of British Columbia, Dr. Brock was director of the Geological Survey Branch during the years 1907-1913. He is now serving as major with the Canadian troops.

Albert Burch is doing everything possible to bring to the chrome producers of the Pacific Coast, through the Bureau of Mines, the assistance of the Government.

J. A. Burgess, John G. Kirchen, Milnor Roberts, B. L. Thane and Bulkeley Wells, were appointed at the American Gold Conference, held in Reno, Nevada, on August 12, 13, and 14, representatives of their states on a general committee. W. J. Loring, George W. Starr, Whitman Symmes and Bulkeley Wells were at the same time appointed members of an executive committee, of which Emmet D. Boyle, Governor of Nevada, is chairman.

Alvin B. Carpenter is consulting and constructing engineer for the Pine Creek Tungsten Co. He writes, under date of August 26, that he is engaged in erecting a 200 ton concentrating mill and hopes to commence production within 60 days. The property is located on the Sierra Nevada range, at an elevation of 11,000 feet, near Bishop, Inyo Co., California. Mr. Carpenter in speaking of the ore-body calls it "the largest tungsten deposit in garnitite that has so far been discovered."

L. S. Cates was in California in the latter part of August. Mr. Cates is general manager of the Ray Consolidated Copper Co.

Benedict Crowell, First Assistant Secretary of War, is, according to the public press, to have direct control of munitions production.

Stanly A. Easton is the subject of a biographical sketch, with portrait, in the "Northwest Mines Handbook" published this year.

B. Britton Gottsberger returned to Miami at the end of the third week in August after his holiday in California. Shortly thereafter, he left for the East and arrived in New York on September 20.

Herbert C. Hoover, because of the services rendered by him to Belgium, has been awarded the Audiffret prize of the French Academy of Moral and Political Science. This prize carries with it \$3,000 in cash.

Hennen Jennings' committee in charge of licensing users of platinum has drawn up regulations for this purpose. Before becoming effective, however, they must receive the approval of Secretary Lane. The committee on gold production, of which Mr. Jennings is also the head, has issued questionnaires to the gold mining companies for the collection of up-to-date information.

J. Volney Lewis, who early in the summer reported that his vacation would be devoted to professional work in the Southern Appalachians, has quite recently made an examination of certain chromite deposits in North Carolina.

George A. Packard, who has been in the West for many months, returned to Boston in the latter part of August.

Joseph Hyde Pratt, according to *The New York Times* for September 8, although rated as a lieutenant colonel, is in command of the 105th Regiment of Engineers of the 30th Division, 2nd Army Corps, A. E. F. This division is popularly known by the name of "Hickory".

Frank H. Probert, who, as announced in the last BULLETIN, has been in Newfoundland on behalf of the U. S. Bureau of Mines, returned early in the month. He does not give much encouragement as to the possibilities of that region as a source of manganese.

M. L. Requa is the author of "Task and Responsibility of the Oil Industry" appearing in *The Evening Post* supplement for August 31, devoted that week to the "Oil Industry". Mr. Requa describes the organization of the National Petroleum War Service Committee, and its sub-committees, and tells what it has accomplished, with the aid of the Fuel Administration, in governing the oil industry.

Milnor Roberts, Professor of Mining and Metallurgy in the University of Washington, presented a paper at the Revelstoke International Mining Convention, on July 9, in which he indicates the help received by the mining industry of the Pacific Northwest from official sources. This paper is printed in a recent issue of the *Northwest Mining Truth*.

William Fleet Robertson's name appears as the compiler of the Annual Report for 1917 of the Department of Mines, British Columbia. It seems that Mr. Robertson received his appointment as Provincial Mineralogist in 1898 and that this is the twentieth report in which he has had a hand. Recently, at the International Gold Conference, held at Spokane, Mr. Robertson was one of the representatives from British Columbia.

S. F. Shaw has again been in Mexico on a trip of inspection, and it is reported that his headquarters will be established in that country.

Bradley Stoughton, under the title of the "American Institute of Mining Engineers and the War," describes in brief what mining engineers and metallurgists are doing to help win the war. This article appears in the *Engineering and Mining Journal* for August 31, which by the way is designated as a "Special A. I. M. E. Number."

H. W. Turner reports, under date of September 10, that he has recently made a geological reconnaissance of the new oil field on the Peace River, Alberta.

A. P. Watt has been absent in Newfoundland, where he went to examine mineral properties.

Walter Harvey Weed announces the publication of "The Mines Handbook" of which he is the editor. This is an enlarged edition for 1918 of what in previous years has been issued under the title of "The Copper Handbook." As the new name implies, this volume is made to cover "the entire metal mining industry." Mr. Weed has been in the West for some part of the summer months and, on recently reaching this city, left again for a professional trip to Canada.

Harry J. Wolf contributes to the *Engineering and Mining Journal*, for August 31, an article on "Mining in the Telluride District of Colorado." Also, Mr. Wolf is the author of "Common Methods of Determining Latitude and Azimuth Useful to Engineers and Surveyors," appearing in the *Quarterly* of the Colorado School of Mines.

**MEMBERS OF THE SOCIETY WHO HAVE BEEN
CALLED INTO THE SERVICE OF THE U. S.
GOVERNMENT AND THE ALLIED ARMIES.**

Lawrence Addicks.....Member, U. S. Naval Consulting Board
 Ralph Arnold.....Member, Board of Tax Reviewers
 Percy E. Barbour.....Capt., Engineer Corps
 Edwin S. Berry.....Capt., 27th Engineers
 Reginald W. Brock.....Major of Canadian forces
 Alfred H. Brooks.....Major, Engineer Corps. A. E. F.
 Gelasio Caetani.....Capt., 1st Reg. of Engineers, Italian Army
 M. F. Chase.....Dir. Explosives Division, War Ind. Board
 J. Morgan Clements.....Bur., Foreign and Domestic Commerce
 Welton J. Crook.....Officers' Training Camp
 Benedict Crowell....Major, Eng. Corps; Asst. Secretary of War
 W. B. Devereux, Jr.....Capt., Aviation Sect., Signal Corps
 J. S. Douglas....Maj. and Dir. Warehouses, American Red Cross
 Francis Drake.....British Aircraft Production Department
 A. S. Dwight.....Major, 11th Engineers, A. E. F.
 Baird Halberstadt....Fed. Fuel Administrator, Schuylkill Co., Pa.
 W. L. Honnold.....Am. Dir., Com. for Relief in Belgium
 Herbert C. Hoover.....U. S. Food Administrator
 D. C. Jackling.....Dir., U. S. Explosives Plants
 Donald M. Liddell.....Capt., Aviation Sect., Signal Corps
 Halstead Lindsley.....Major, Ordnance Corps
 Charles W. McMeekin.....Major, Engineer Corps
 C. H. Macnutt.....Lt. of Engineers in Canadian forces
 B. Magnus.....Capt., Engineer Corps
 W. W. Mein.....Assistant to the Secretary of Agriculture
 C. W. Merrill.....Div. of Chemicals, U. S. Food Administration
 H. G. Moulton.....Engineer, War Industries Board
 Seeley W. Mudd.....Col. and Asst. Dir., U. S. Explosives Plants
 O. B. Perry.....Lt. Col., 27th Engineers
 Joseph Hyde Pratt.....Lt. Col., 105th Engineers, A. E. F.
 A. L. Queneau.....Officer Interpreter, French Army
 M. L. Requa.....Chief of Oil Div., U. S. Fuel Administration
 Edgar Rickard.....U. S. Food Administration
 A. P. Rogers.....Materials Dept., Signal Corps

W. L. Saunders.....Chairman, U. S. Naval Consulting Board
Millard K. Shaler.....Hon. Sec., Com. for Relief in Belgium
J. E. Spurr.....U. S. Shipping Board
S. A. Taylor.....Tech. Advisor, U. S. Fuel Administration
S. C. Thomson.....War Export Board
Arthur L. Walker.....Con. Met. to Chief of Ordnance, U. S. A.
William Young Westervelt....Chairman, War Minerals Committee
Pope Yeatman.....Chief, Non-Ferrous Metals Sec., War Ind. Brd.

DIED IN THE SERVICE OF THEIR COUNTRY.

William Hague.....January 1, 1918
J. D. Irving.....July 20, 1918

Mining and Metallurgical Society of America

Vol. XI, No. 10

October 31, 1918

Bul. 125

ANNOUNCEMENTS.

Gold Medal.—The response of the members in the matter of nominating candidates for the honor of receiving the 1919 medal was uncommonly meagre, but may perhaps be accounted for by the fact that the member-list carries a comparatively small number of ferro-metallurgists, and that thus the members, generally, are not fully conversant with the names of those who have become distinguished in the metallurgy of iron and steel.

The names of all candidates are now in the hands of the Gold Medal Committee, which will report the result of its findings to the Council on, or before, November 14.

Invention Problems.—Under this title, the Secretary has received from the War Committee of Technical Societies descriptive memoranda on some of the problems now confronting the War Department, and which are in need of immediate solution. It will be recalled that similar problems have heretofore been published in the form of individual bulletins, but since the establishment of closer relations between the War Department and the W. C. T. S. arrangements for the continuance of this plan have not been perfected.

Thus, the only other ready method for bringing these problems to the careful attention of the members is to print the memoranda in full in the BULLETIN. They will be found on page 312 of this issue.

Minerals-Control Bill.—Although the Society has had no direct connection with the legislative course of the war-minerals bill since July, at which time the proper authorities were notified of the action taken by the Society in approval of its "general principles," the subject is of such vital interest that announcement should be made of the final steps taken.

The bill on "Minerals and Metals for War Purposes" as finally reported by its Committee on Mines and Mining was passed by the Senate on September 11, with a few unimportant amendments. It must be borne in mind however that, as already announced in the

BULLETIN, the measure as passed in the Senate had but little semblance to that originating in the House.

The war-minerals bill passed from the hands of the Senate to a conference between it and the House and, in spite of the radical changes adopted by the former body, an agreement by the conferees was reached shortly before the first of October. And ultimately, on October 5, President Wilson affixed his signature, legalizing, at least in part, the regulations for the control of war-minerals initiated by the War Minerals Committee.

COMMUNICATIONS.

U. S. Bureau of Mines.—Because the Society has been in close touch with the Bureau of Mines, and will, it is hoped always continue to be, and because a number of our members are serving under Director Van H. Manning, it seems but proper that some reference should be made to an article which appears in the October 12th number of the *Engineering and Mining Journal*, entitled "Bureau of Mines Activities."

Naturally, in these days, the activities of the Bureau can only be those which have been imposed on it by the Central Powers, and its accomplishments and undertakings are difficult to measure. The article in question does not pretend to cover all the duties which have fallen upon the Bureau, but it does give an insight into the varied lines of work which are being followed.

Crippled American Soldiers.—The letter and enclosures, which follow, are directly in line with the campaign begun by this office, earlier in the year, to interest the mining and metallurgical professions in the welfare of the injured soldier. The work contemplated by the Red Cross Institute for the Blind is doubly important because it is to undertake the reconstruction of not only the military but also the civilian blind. It is believed that the members of the Society will agree that the "Plan of Survey" adopted has many excellent features and tends toward thoroughness.

October 5, 1918.

Mining and Metallurgical Society of America,
New York, New York.

Gentlemen:

The Red Cross Institute for the Blind, which was organized by the War Council of the Red Cross at the request of the Surgeon General of the Army to supply the necessary social and economic supervision for the blind soldiers and sailors after their discharge by the Government, is conducting a survey of all industries in the United States to determine possible occupations for blind soldiers, sailors and marines returning from the front.

My purpose in writing you this letter is to ask for your co-operation in making this survey. The mimeographed enclosures will give you a good idea of the plan of the survey, which I hope may have your careful consideration and criticism, in order that we may be able to improve upon our present plan.

The thing we have found most difficult up to this time is the classification of the industries (as suggested in Paragraph (1) under PLAN OF SURVEY) so that all firms in each group will have practically identical operations and will manufacture the same product. I should like to have you fill out the enclosed blank and return it to me together with the information requested at the bottom of the blank.

Your co-operation in this matter will be highly appreciated by the Red Cross Institute for the Blind, and you will be rendering a valuable service to the boys "over there" who are risking everything that they have in order to make this country safe for all of us.

Yours very truly,

A. B. SECUR,
Industrial Engineer,

Red Cross Institute for the Blind.

SURVEY OF OCCUPATIONAL POSSIBILITIES FOR THE MILITARY BLIND.

PURPOSE OF THE SURVEY.

(1) To provide such employment for the men blinded at the front as to enable them to become wholly self-supporting.

(2) This will open the way for taking the willing civilian blind off the market,

(3) and provide an industrial asset in the form of an increased labor supply.

In order to fulfill our purpose, it will be necessary to cover the whole range of industries so that the interests of the many thousands of people with whom we will need to come into contact may be intelligently satisfied.

PLAN OF SURVEY.

(1) A classification will be made of all industries in the United States according to occupation and production. All plants which have the same general occupations and which manufacture the same class of products will be placed in one group. These groups will be assembled into larger groups, and these into still larger groups until a complete classification is had of all the plants in the United States belonging to each of these smaller groups, together with the names and addresses of officers, and the number of employes in each plant. From the Secretary or President of the Trade Association heading each group information will be obtained as to the best organized plant within the group.

(2) A survey will then be made of each selected plant and a careful job analysis made of each occupation. Those occupations which are adaptable to the blind will be selected and complete data will be obtained, as outlined in the Specific Operations questionnaire enclosed. In order to determine what the working conditions are likely to be in this trade or group, a survey will be made of the best representative plant in the group very much along the lines defined in the Plant Data questionnaire enclosed.

These surveys will be conducted in three different ways:

(a) Those plants which have in their organization a capable time study man will probably prefer to make their own survey, under the general supervision of the Industrial Engineer for the Red Cross Institute for the Blind.

(b) Those plants which have capable time study men, but who desire special information regarding the capacities of the blind, will be assigned a representative from the Red Cross Institute for the Blind, who will work with the time study man in making the survey.

(c) Those plants which have no time study man, and all other plants which so desire, will be surveyed by a corps of assistants sent out from Baltimore.

The possibilities of employment will be classified, first by industries, then by groups, and then by sub-groups. These possibilities will all be carefully checked by a commission composed of experts on blind occupations, who will sort the total number into probabilities and possibilities. Very carefully detailed information will be obtained on the probabilities both in the plant first surveyed and in other plants of that group. This information will also be returned to the commission who will pick out from this list those which should be developed at Baltimore. The Institute is then prepared to spend whatever amount of money that may be necessary on these operations to determine the very best method of performing each. The instructors will then be taught to perform this operation in the one best way, and they in turn can teach the blind man. Then, when the employer calls for a workman, he will be furnished with a man who is not only able to equal the output of the sighted employe, but who in many cases may be able to exceed this output.

It may be considered doubtful whether it would be practicable to train the blind for occupations in either the mining or the metallurgical industry, but at least these industries should concern themselves with the larger subject of giving employment to the returning soldier who, because of his disabilities, or other reasons, finds himself out of a job. And most certainly it will be the duty of these industries, and those who guide them, to take care of their own.

Government War Service.—As this issue goes to press, this office is in receipt of the following announcement of the Navy's need for engineer officers. The headquarters in this city of the Navy Mobilization Inspector is at 225 West 42nd Street, and all applicants for this service are referred to that office. An inquiry has elicited the further information that the age limits are 21 and 40, and that, although not so specified in the notice, mining engineers are as acceptable as are applicants from other branches of engineering.

Dear Sir:

The urgent need of the Navy for men to be trained as Engineering Officers has prompted me to write you and your members to ascertain if any are interested in joining this branch of the Service.

The knowledge necessary to qualify for the course given at the U. S. Navy Steam Engineering School is that a man be either a graduate or one

MINING AND METALLURGICAL SOCIETY OF AMERICA

who has pursued a Mechanical, Electrical or Civil Engineering Course in some recognized University. Men who have had a practical experience equivalent to the above courses have made excellent material also.

The work of the School has been embodied in a course of training covering five months, viz:

One month training at the Naval Training Camp, Pelham, N. Y.

One month of technical work at the U. S. Navy Steam Engineering School, Hoboken, N. J.

Two months practical training on board ships and in shops in the vicinity of New York.

One month finishing course of instruction at U. S. Navy Steam Engineering School, Hoboken, N. J.

If men are found eligible by the Navy Mobilization Inspector, they will be individually inducted through their local boards as Apprentice Seaman and upon qualifying for the School will be rated Chief Machinist Mate with pay of \$83.00 and, in addition subsistence and lodging. If they finish the course successfully they will be given the rank of Ensign.

Applications should be sent to me at the address given above.

Very truly yours,

C. L. McINTYRE,
Ensign, U. S. N. R. F.,
Assistant Mobilization Inspector,
Eastern Division.

OTHER SOCIETIES.

ENGINEERING COUNCIL.

In the matter of the "Relation of Engineering Colleges to Federal Government," and for the reason that colleges are so largely dominated by the Government, the Engineering Council has called the War Department's attention to the detrimental effect which is likely to ensue as a consequence of the new draft law. It fears that the supply of technically trained men for the immediate future will be materially decreased and makes an urgent appeal that technical schools should be operated to their full capacity, and that their efficiency should not be lowered. As a final plea, the Engineering Council points out that the coming engineers will be needed in the work of rehabilitation after the war.

It is comforting to know that the military Committee on Education and Special Training gives the Engineering Council every assurance that the Government program contemplates giving adequate protection to the college student, and that, although the Students Army Training Corps has been established primarily as a war measure, the students wherever possible will be allowed to complete their courses.

War Committee of Technical Societies.—This Committee has issued from its newly established Washington office, 3549 New Navy Building, under date of October 9, a series of "Invention Problems," which, as a preamble sets forth, require "scientific and inventive talent for solution." It is further stated that the problems were received from the Inventions Section of the General Staff, and that all suggestions as to their solution should be forwarded to this Section in care of the Army War College.

A letter of transmittal from the secretary of the W. C. T. S. requests that these problems should be laid before the members. They are here given without omission or amendment:

PROBLEM NO. I.

LIAISON PROBLEM.

In operations of our troops fighting in France, all have seen the necessity of perfecting liaison between different elements of the command. This is especially true as regards liaison between elements of the front line troops and between front line troops and elements further to the rear.

Our infantry advances in spite of the most serious resistance offered by the enemy, and the losses suffered are necessarily heavy. These losses can be lessened by increased artillery activity. Liaison between the infantry is now maintained insofar as is practicable, by sending forward with the infantry a large artillery liaison personnel, well equipped with the material of liaison—telephones, wire, flags, projectors, rockets, radio, etc.

This personnel is charged with sending back information whereby fire may be directed on the hostile elements causing losses to our troops.

The system of liaison, using the above, does not always give satisfactory results. The enemy's fire frequently cuts off the infantry, and cuts regimental commanders from the units in the front lines. Wire is almost immediately cut by shells; optical signaling becomes impossible on account of smoke, dust and frequently is interfered with by fog; runners become disabled or killed; pigeons go astray; radio is interfered with by enemy stations, and the antennae are destroyed by enemy fire; ground telegraph is limited in range, and interfered with.

The War Department is desirous of finding a new means of communication whereby closer liaison may be maintained by the different elements of a command.

A device for this purpose should be small and compact, without antennae exposed to shell fragments; it should be easily transported by one man, or at the most by three men; it should be capable of being set up quickly, and not present a target to the enemy; it should operate over a distance of at least five miles and be certain of action.

It is believed that the War Department is in possession of the latest developments insofar as radio, telephony, signaling devices and similar apparatus are concerned, but is now seeking for something that is an improvement over all these devices. So far as known, nothing of the kind exists at present, but it is believed, with the inventive genius of the country concentrated along these lines, something desirable may be developed which will be of the greatest assistance in winning the war.

PROBLEM NO. II.

AN AVIATION PROBLEM.

On night bombing expeditions and even in the day time, when passing through fog or clouds, an airplane, like a ship, is guided entirely by a compass. Some of the new instruments designed for this work are beautiful examples of the instrument-maker's skill, but, unfortunately, when placed where the aviator can see them, they are directly between him and the engine, a position which greatly affects their accuracy.

If a compass could be placed near the outer end of a wing, or at the rear end of the fuselage, it would be practically outside of the magnetic influence of the engine, but at present there is no way to read a compass in either of those positions.

What is needed is some device or arrangement whereby a compass can be mounted far enough away from the engine to be outside of its magnetic influence and still be so arranged that it can be easily read by the aviator.

PROBLEM NO. III.

A BETTER FIRE CONTROL GEAR FOR FIXED MACHINE GUNS ON AIRPLANES.

The forward machine gun on an airplane is fixed and fires between the propeller blades in the direction in which the machine is headed at the time of firing.

The function of a fire control gear is to control the fire of an aircraft machine gun shooting through the propeller so that no shots will be fired when the blades of the propeller are in a position where they are in danger of being struck. This is done usually by a cam attached to the crank-shaft or geared to the propeller which sends an impulse by mechanical or hydraulic means to the trigger mechanism of the gun only when the propeller is in a safe position for the gun to be fired. This impulse trips the trigger and a shot is fired. As gears are now designed, two impulses are given to the gun every time a blade of the propeller is in a certain position with reference to the bore of the gun.

Fire control gears are of two types: hydraulic and mechanical. The advantages and disadvantages of each type are listed below.

Hydraulic Gear.

Advantages:

1. Allows gun to be placed in any position with reference to the engine, inasmuch as the hydraulic pipe line can be bent.

Disadvantages:

1. Difficult to fill and take care of. Requires a good deal of special training and experience to get good results. Many small parts to get out of adjustment. Difficulty from leaking.
2. Lag in impulse due to time taken by hydraulic wave to pass down pipe line. This causes a wide dispersion of shots for changes in the R. P. M. of the propeller. Shots fired at low R. P. M. fall too near one blade of the propeller and shots fired at high R. P. M. too near the other blade; thus the safety margin is cut down and R. P. M. at which the gun may safely be fired is limited.
3. At low R. P. M. the impulse changes from a pressure wave to a simple hydraulic action and the gear cannot then be depended on.

Mechanical Gear.

Advantages:

1. Action always positive and certain.
2. No lag of impulse in transmission.
3. Easily taken care of and adjusted.

Disadvantages:

1. Position of gun limited with reference to the engine as it is difficult to send impulse around corner.
2. In case where impulse is transmitted by rods difficulty is encountered from whip.
3. Wear in rods and cams affects timing.

Disadvantages of both types of gears:

1. In both types of gears the principal drawback is the dispersion of shots between zero speed and maximum speed which limits the type of propeller used and limits the safe firing speeds. This is greatest on hydraulic gears.

2. Rate of fire of gun dependent on R. P. M. of propeller. For example, if machine gun is designed to shoot 800 shots per minute and the propeller is turning over at 400 R. P. M., or 800 impulses are given per minute, the gun will fire on every impulse and the rate of the geared gun will be 800 shots per minute. If the propeller is turning at 500 R. P. M., or giving 1000 impulses per minute, the gun cannot use every impulse, but will use every other impulse, and the rate of fire will only be 500 shots per minute or the efficiency will be decreased. This is an important disadvantage of the present system.

The ideal fire control gear:

1. Maximum rate of fire is obtained at all R. P. M. of the propeller.
2. The time of impulse is advanced as the propeller speed increases so that shots at maximum speed will fall in the same position with reference to the blades of the propeller at the plane of the propeller, as shots at zero speed.

3. Easily placed at any position with reference to the engine.

4. Simple to take care of and adjust.

It is obvious that if the first advantage is obtained, the second must be sacrificed, but a better combination of the two is desired than that which we have at the present.

The problem which presents itself is to devise a fire control gear which incorporates the above advantages. The solution seems to lie in an electrical system.

Calculations must be based on the following data:

Distance from muzzle of gun to plane of propeller varies from 3 to 6 feet.

Maximum propeller speed 1600 R. P. M.

Rate of fire of airplane machine gun 1200 shots per minute.

PROBLEM NO. IV.

SPECIFICATIONS FOR NEW REAR SIGHT DESIRED FOR THE UNITED STATES RIFLE, CALIBER .30, MODEL OF 1917.

It is desired that designs be submitted for a new rear sight for the United States Rifle, Caliber .30, Model of 1917. The present rear sight is

not regarded as entirely satisfactory wholly because the rifleman cannot readily bring the point of impact of the shots to coincide with the point of aim. The present sight can be adjusted only for hundreds of yards of elevation, it not being possible, for example to adjust it between 400 and 500 yards; also, there is no lateral or windage adjustment.

It is desired that the new sight have adjustments whereby the rifleman can readily bring the point of impact to coincide with the point of aim as was true with the rear sight on the United States Rifle, Caliber .30, Model of 1903 (Springfield). It is not necessary, however, that the lateral or windage adjustment of the new sight have as extended a movement as that on the rear sight of the Model 1903 rifle, a movement of .25 inch being sufficient. If this much cannot be obtained sights which permit of a movement of .20 inch on either side of the zero may be submitted.

In connection with the elevation adjustment, an adjustment by means of a strong micrometer screw may be submitted, but this is not necessary. If a micrometer screw is inserted it should be in addition to the ordinary slide adjustment, and the graduations thereon should read so as to permit of a vertical movement of the point of impact of 1 inch at 100 yards, 2 inches at 200 yards, and so on. In other words, the adjustments should be for minutes of angle.

The lateral or windage adjustment should preferably be actuated by a screw as on the rear sight on the Model 1903 rifle, but may be actuated by a slide and clamp. The graduations of this adjustment should be equivalent to 4 inches for every 100 yards of range. If a screw is used to adjust, then one revolution of the screw should either move the adjustment over one graduation on the scale, or over four graduations.

It is strongly desired that this new rear sight be capable of being placed on the present receiver of the Model 1917 rifle without any modification of the receiver whatever. That is it should fit between the two rear sight guards on top of the receiver, and be secured thereto by the rear sight joint bolt. If this is not possible then the rear sight should be capable of being fitted to rifles in the hands of troops by such simple operations as could readily be made by mechanics in the field.

The cost of construction is a serious item. A satisfactory rear sight can easily be designed which will conform with all the above requirements, but its construction will be so complicated that its cost will be prohibitive. No rear sight, the cost of which is not prohibitive, and which retains the present desired principle of aiming (a large aperture in a small disk) has yet been presented.

A design is desired in which, when the leaf is laid flat, a battle sight similar to that on the present sight, is presented in position for aiming. This battle sight should be of sufficient height for firing at 300 yards. That is the point of impact and point of aim should coincide at 300 yards. When the leaf is turned up vertical it should permit of elevation adjustments from 100 yards to 1500 yards at least.

Ability of the new sight to stand rust, and to be readily cleared of dust and mud are very desirable. No fragile parts should stand above the guards of the receiver. All screws used for adjustment should be strong enough to stand the handling which the soldier will give them under service conditions.

The reasons for thus writing the specifications for this new sight are as follows:

Aiming Principle. The present aiming principle as seen on the sight for the Model 1917 rifle is believed to be correct. Any peep sight should

be as near the eye as possible, and still avoid injury to the eye from recoil. The principle of a large aperture and small disk, the Lyman sight, is correct for a military sight. Such a sight can be used for rapid fire, and for fire against a poorly defined target or one in a poor light. A small aperture with a large disk is better for target shooting, but with such a sight the rifleman cannot find his target quickly if it be not in one set position as in target shooting, he cannot see to aim at poorly defined targets, nor in poor lights, and he cannot keep a moving target constantly in view.

Adjustments. The rifleman is taught to aim in a normal manner, with the top of the front sight held just below the bull's-eye or target at 6 o'clock. With a little practice he has impressed on the retina of the eye a picture of the sights correctly aimed. His eye retains a memory of this picture, and he is able to reproduce this picture exactly, and with great accuracy in aiming. If, at any time, this picture is incorrect the error stands out so apparent that the rifleman is at once aware of it and corrects the error. Thus the rifleman when aiming normally aims consistently, the same for every shot, and a small group of shots results—this is accuracy. Accuracy therefore results when the rifleman is able to aim normally, that is, when with a normal aim the group of shots, that is the point of impact, will fall on the point of aim. If, however, it is not possible to bring the point of impact to coincide exactly with the point of aim, through the inability to so adjust the sights, it will be necessary for the rifleman to aim other than normally. Thus, if he is firing at 500 yards, and the rifle requires an elevation of 535 yards, and a lateral deflection of 20 inches to hit the center of the bull's-eye, and owing to the construction of the sight he can only adjust the rear sight to 500 yards elevation, and no deflection, then it will be necessary for him to aim, not normally, but about 15 inches above the bull's-eye, and about 20 inches to one side. In practice he must estimate where these measurements will come on the target, and then estimate that he is holding off this much. The picture of the normal sighting which has been impressed on the retina of his eye is of no use to him. He must see his sights aligned differently practically every time he fires at any range, and if in addition a varying wind is blowing he must sight differently at every shot. It has been determined conclusively that if a skilled rifleman fire at 200 yards a series of ten shots with normal aim he will attain with the service rifle and good ammunition a group, all shots of which will be contained in a circle approximately five inches in diameter. If, however, instead of aiming normally, he is required to aim as nearly as he can estimate eight inches below the bull's-eye, and five inches to its left, then his group of successive shots instead of being contained in a small circle about five inches in diameter, will require a circle about ten inches in diameter to contain them—that is, his error is just about doubled. We therefore see the desirability of a sight the adjustments of which are such that the rifleman can readily bring the point of impact to coincide with the point of aim at any range.

It is of course known that no two rifles ever shoot exactly alike, and that no two riflemen ever aim exactly alike, hence it is practically impossible to ever set the sights correct for every man or, indeed, for any particular man. Every rifleman must sight in his own rifle.

Zero. It is impossible to set the sights for zero for any particular man, or even for the average man. By means of the triangle aiming exercises conducted at 100 yards it has been found that when the rifle is held absolutely immovable and sights not moved, that riflemen will bring a bull's-eye into line very differently. Almost every man will do it slightly differently. The maximum error among riflemen of national reputation,

as determined at the Small Arms Firing School at a range of 100 yards was found to be about 12 inches. That is, if an attempt be made to set the sights of a rifle at zero at the armory these sights may be found to be as much as 12 inches out of correct alignment for a good shot at 100 yards.

PROBLEM NO. V. PYROTECHNIC SMOKE SIGNALS.

It is desired to secure, if possible, a suitable chemical substitute for Red Saxony Arsenic now used for the manufacture of Yellow Smoke Signals. The characteristics of such a chemical are that it should produce the effect required, that it should be procurable in large quantities, and that it should be perfectly stable in combination with other chemicals, such as Potassium Chlorate. The effect desired is a rather deep orange yellow. There is no objection to the use of dyes should these give the effect required and be procurable in large quantities at a reasonable price.

A suitable formula for a Red Smoke Signal is also a desideratum. The effect required is a pronounced and positive shade of red. As in the case of the Yellow Smoke Signal, chemicals composing it should be readily procurable and should be stable. Since, however, the requirements for this signal are considerably smaller than for the Yellow Smoke Signal a greater latitude may be allowed in selecting slightly less readily available and higher priced material for this signal.

The smoke signals outlined above are displayed from Rockets, Very Cartridges, Viven-Bessiere Cartridges and 35 M/M Cartridges. The Rockets now used by our forces weigh about two pounds with an approximate length of eighteen inches. The V-B, Very Cartridges, and 35 M/M Cartridges have an average length of about six inches with a diameter respectively of two inches, 25 M/M and 35 M/M. The V-B Cartridges are thrown from the Rifle Grenade Discharger, and the Very Cartridges and 35 M/M Cartridges from the 25 M/M Signal Pistols.

Should any person accredited by the Inventions Board become interested in the two pistols outlined above, this office would be very glad to give all the information in its possession.

It should be noted that "Auramine" has already been tried as a dye for the Yellow Smoke Signal and that "Paratoner" has been used in the Red Smoke Signal.

PROBLEM NO. VI.

An improved hand grenade is wanted with the following characteristics:

SYNOPSIS OF DESIRABLE QUALITIES FOR IDEAL RIFLE GRENADE AND IMPACT GRENADE.

1. Rifle Grenade:

- (1) Simplicity of construction and operation.
- (2) Light weight (under 20 ozs.).
- (3) Safety.
- (4) Sureness of explosion.
- (5) Long Range (between hand grenade and trench mortar).
- (6) No damage to rifle from use.
- (7) Should require no special ammunition.
- (8) Adaptability for use as hand grenade as well as rifle grenade.
- (9) Designed to secure maximum fragmentation and hold maximum amount of explosive.
- (10) Should not require special tromblon or discharger.
- (11) Detonators inserted separately.

2. Ideal Impact Grenade:

- (1) Must explode no matter what the angle of impact.
- (2) Must explode on soft ground as readily as on hard ground.
- (3) Safety.
- (4) Simplicity of construction and operation.
- (5) Fit easily in the hand.
- (6) Light weight (not over 22 ozs.).
- (7) Be adaptable for use in grenade thrower with safety.
- (8) Should permit rough handling.
- (9) Weather-sound and flash-proof.
- (10) Detonators inserted separately.

PROBLEM NO. VII.

IMPROVEMENT IN CABLE BRACES FOR AIRPLANES.

The present method of attaching the ends of cables to turn buckles and anchorage is by bending the end of a cable around a protecting liner and wrapping the overlapping end with brass wire, which is afterwards soldered.

This is an unsatisfactory, wasteful and expensive method. If some very simple method of anchoring cable ends could be devised, it will greatly speed up the production of aircraft.

American Engineering Service.—Although no applications in response to the June requisition for 2000 engineer officers were acceptable subsequent to August 12, the work of examining the applicants still continues. The Officers Examining Board, of the Chief of Engineers' office, was in session in this city again for five days beginning with October 22. The Board occupied the rooms of the A. I. M. E. and it is understood that 200 applicants appeared before it.

UNITED ENGINEERING SOCIETY.

A joint meeting of the A. E. S. and the Engineering Foundation was held on October 7 for the special purpose of formally accepting an additional gift of \$100,000 donated by Ambrose Swasey to Engineering Foundation. It will doubtless be remembered that Mr. Swasey's former contribution to the E. F. was \$200,000.

CAPTAIN J. D. IRVING.

As Irving was a Columbia graduate, it was the obvious thing for the Secretary to communicate with the Columbia University Paris Bureau in order to obtain further details regarding the captain's life and death overseas. Mr. Horatio S. Krans, Director of the Bureau, has replied, under date of September 16, in part as follows:

I enclose herewith a copy of a letter regarding Captain John D. Irving. It was sent to the Yale Bureau here in Paris. Professor Mendell, of that Bureau, tells me that the Captain was in charge of the topography in the 1st Engineers Reserve. The duties of his unit were to analyze bird's-eye photographs taken from scout airplanes, and to make strategic maps from them. Captain Irving was chief instructor in mining at the Army Engineers' School, and had never been under fire; he was teaching at Langres at the time of his death. I am told that he had always been a tireless worker and that he had overworked himself at the work in the Engineers' School. I will endeavor to get more information for you, but I am sending this now in case you need some data at once.

The enclosure referred to by Mr. Krans has been already reproduced in at least one technical journal, but is printed here for the benefit of Irving's brother members:

Mr. C. W. Mendell,

August 2, 1918.

Director Yale Bureau,
American University Union,
8 Rue de Richelieu, Paris.

My Dear Sir:

In reply to your letter of July 31, would say that the burial of Capt. John D. Irving, Engineer R. C., took place on Tuesday, July 23, 1918. The escort left the American hospital at Langres at 3 p. m. and proceeded to the American section of the Langres cemetery, just north of town. A military band led off, playing the funeral march, followed in order by Company A, 27th U. S. Engineers, which formed the escort, then the remains supported on a gun carriage and draped with the national colors, and finally a number of allied officers attending the funeral. The honorary pallbearers were Col. F. S. Bond, Commandant, Army Engineer School; Col. F. B. Wilby, Lieut. Col. J. W. Schultz, Maj. J. G. B. Lampert, Maj. Evarts Tracy, and Maj. Brooks, all of the Engineer Department.

The burial service was conducted by Dr. C. W. Lowrie, pastor of the Presbyterian Church, Detroit, Mich., who is now serving as a chaplain of the Y. M. C. A. In the course of a most excellent address Dr. Lowrie made a number of well-chosen remarks upon the value and importance of the work on which Captain Irving was engaged, upon the important results already attained by him, and upon the great loss to the service that his death occasioned. The Army Engineer School can most heartily concur in all of the above, as Captain Irving was one of our most valuable officers, and his place will be most difficult to fill.

At the conclusion of the service, Company A fired three volleys over the grave and a trumpeter sounded taps beside it. There were a number of flowers presented by Captain Irving's friends.

All of Captain Irving's effects have been secured and disposed of according to orders and regulations, the grave is properly marked and identified, and it is therefore believed that there is nothing that you could possibly accomplish by coming to Langres.

Yours truly,

W. H. HOLCOMBE,
Major, Corps of Engineers,
Assistant Commandant.

Also, permission has been granted by the *Engineering and Mining Journal* to reprint a letter from Fred Searls, Jr., to John Gray.

The story of Irving's last days are here related by one who was intimately associated with him.

France, July 28th, 1918.

Dear John:

This is the first opportunity I have had of writing you concerning Captain Irving's death. Poor old John; he literally worked himself to death. Died of pneumonia at midnight July 20th. The real story is this: He came down from the 11th to the Army Engineers' School last December and entered on the matter of developing and teaching dug-out construction to the A. E. F. It was a bit of far cry from his own work to come down to practical details of mine work. But he applied the same ability and tireless energy to it that he showed in other things, and he got ahead with it in a way that was remarkable. I can't tell you how much credit he deserves for it or how much use the work has been and will be to the army. I came down here at his request to help, and in the matter of previous experience and knowledge of such things I probably had quite an edge on him. But in accomplishment and learning the game, he passed me like an express train. He was the foremost authority over here on these things, and he leaves a lot of firm friends in the army game.

I was almost glad that we lost the Star decision, because I told him about it the last time I saw him conscious, and it cheered him up so much.

He was just getting out these new E. F. N. and was working all hours at G. H. Q. He came down here on the 9th, ill, and went to the hospital on the 11th, with this three-day fever that has been hitting us all. We thought nothing of it, and by the 15th he was much improved. The next day he suffered a relapse and developed pneumonia. We got expert doctors in consultation, and I can say truthfully that everything possible was done. He didn't have any resistance; was worn out, and he just got worse and worse until he died.

He was buried with full military honors in Cemetery 13, A. E. F., Grave 58.

I lost the best friend I've had in the army. In addition, he was my captain, and I had come to regard him in this respect in rather a different way from the old Butte days. He was a fine man, John, and it was good to serve under him.

I wrote to Kemp and to Irving's uncle in New York. Would you send a synopsis of this letter to Will Clark and to Winchell? I think they would be interested in knowing that John was accomplishing something worth while over here, and the details of his death.

As for me—I'm doing what I can; part of the time at the front and part at this school. Have seen some fighting and know what the game is. It's a tough one, and while I'm wishing I were in the infantry, I think I'll get plenty of chance before it's through. Our men are remarkable—with scant training and no experience they go in and clean everything up. It makes a man proud to be in this man's army. They're afraid of nothing and like the going. Heard a sergeant praising the Italians naively the other day: "Yes—they're all right; follow us anywhere." And the Yanks aren't following anybody, not even the veteran French heroes. Only Fritz.

Guess that's enough optimism—looks like a long hard game to me.

Yours,

SEARLS.

CHANGES OF ADDRESS.

Laird, Geo. A.....Ray, Ariz.
Thane, B. L.....Crocker Bldg., San Francisco, Cal.

PERSONALS.

H. Foster Bain, Charles W. Merrill and J. E. Spurr form a Committee of the U. S. Bureau of Mines, which, under an order issued by the War Department, will have the power to obtain the temporary release from military service of such skilled employees as are absolutely essential to the mining industry.

O. M. Bilharz, whose interest in the Batesville, Arkansas, manganese field was recently noted, is vice-president of the Leader Mining Co. of this district.

A. H. Brooks, who is major of engineers and now with the American Expeditionary Force, is the author, with others, of "Mineral Resources of Alaska" published by the U. S. Geological Survey.

Frederick Burbidge was in Virginia early in September on a visit to his son who, as an officer of the Marine Corps, is stationed in that state. Mr. Burbidge, by the way, is chairman of the Idaho board which will assist the U. S. Bureau of Mines in obtaining deferred classification for miners, who are registrants in the latest draft.

Albert Burch, who is stimulating the production of chromite and other essential minerals on the Pacific Coast, represented the U. S. Bureau of Mines at a recent conference in Washington called to determine the future needs of the Government for chromite. It seems that newly-opened deposits and careful conservation are meeting present demands.

L. S. Cates is a member of the district board for the draft for northern Arizona, with headquarters at Phoenix.

C. R. Claghorn has received a lieutenant's commission in the U. S. Naval Reserve Force and was ordered on active duty on October 15.

George E. Collins, in correspondence with the *Engineering and Mining Journal* of September 28, draws attention to the difficulty of replying accurately to the questionnaire issued by the committee which is investigating the production of gold. He points out also the problems which now confront the managers of gold producing properties.

A. E. Drucker is now associated with Messrs. Howard, Morinni & Co., Inc., a firm of industrial engineers, which has offices in this city at 111 Broadway, and at 106 Boulevard Haussmann in Paris. Mr. Drucker will have the management of the chemical and metallurgical department.

A. S. Dwight, major of the 11th Engineers, A. E. F., is temporarily absent from his regiment to become connected with a lead smelter in the south of France.

J. R. Finlay, who was a resident of Tucson during the past winter and spring, begins in the issue of September 28, of the *Engineering and Mining Journal* an article entitled "The Jerome District of Arizona," Part I. Part II follows in the next number.

H. O. Hofman has issued another edition of his "Metallurgy of Lead." According to one reviewer, however, it appears that this important treatise has been very largely rewritten.

Herbert C. Hoover has received a signal honor from the Belgian government. According to the *Engineering and Mining Journal*, a decree signed by all the ministers has been issued conferring on Mr. Hoover the title of "Honorary Citizen and Friend of the Belgian Nation."

W. R. Ingalls, D. C. Jackling, Sidney J. Jennings and C. W. Nichols were members of the Mining Industry Committee for the Fourth Liberty Loan. The quota which this committee was called upon to raise in the New York Federal Reserve District is \$40,000,000.

D. C. Jackling has become the president of the Butte & Superior Mining Co. In the middle of September, Mr. Jackling was in Salt Lake City inspecting the property of the Utah Copper Co.

Hennen Jennings' committee in charge of the platinum situation has issued regulations controlling the use of this commodity. These regulations are printed in the *Engineering and Mining Journal* for October 5.

A. F. Keene, who since his return to this country has been rendering valuable service to the U. S. Bureau of Mines, is now regularly assisting in certain important work for the U. S. Geological Survey.

J. F. Kemp was the guest of the Columbia Alumni Club of Utah at an informal dinner held on September 28. Reno H. Sales and W. A. Wilson were also present on this occasion. Professor Kemp is engaged in professional work at the Highland Boy mine.

E. B. Kirby, who had for some time been serving the War Committee of Technical Societies as acting secretary, has now been elected to the vice-presidency.

Oscar Lachmund, it is announced, has resigned from the management of the Canada Copper Corporation. His successor will be Hugh R. Van Wagenen. Mr. Lachmund will make his headquarters in Spokane, Washington, where he will engage in consulting work.

George A. Laird, until recently associated with Henry L. Doherty & Co., is now at Ray, Arizona. He has been elected secretary of the Ray Broken-Hill Mining Co., and is acting as resident advisory engineer to this company.

A. R. Ledoux has been made a member of the Americanization Committee recently organized by the Engineering Council.

Donald M. Liddell, now a captain in the Signal Corps, has issued a revised edition of "The Metallurgists' and Chemists' Hand Book."

J. F. McClelland, Professor of Mining Engineering at Yale University, announces that he has been appointed Chief of Production Engineering in the Engineering Division of the Bureau of Aircraft Production. His headquarters are at Dayton, Ohio.

Arthur Notman is reported to have applied for a commission in the Engineer Corps.

George A. Packard, who only recently returned from the West, has been in Ontario examining mineral properties.

P. A. Robbins is reported to have entered the military service of the Government. As is known, Mr. Robbins is general manager of the Hollinger Consolidated Gold Mines, Ltd.

A. H. Rogers, who has been away for some time on a professional trip, returned East late in September.

Stanley C. Sears has been commissioned a captain in the Engineer Corps, and has been assigned to Camp Humphreys, Virginia.

Gerald Sherman, in a communication to the *Engineering and Mining Journal* for September 21, calls attention to the fact that proper credit for the invention of certain machinery used in drill-sharpening shops has never been placed where it rightfully belongs. It seems that George Mieyr, a master mechanic, is responsible for the device in question.

Franklin Wheaton Smith, who went to Chihuahua, Mexico, for examination work late in September has returned to his home in Bisbee.

Morril B. Spaulding, for some time superintendent of maintenance with the Chester Shipbuilding Co., Ltd., reports that he has been appointed Resident Engineer, Division of Shipyard Plants, of the Emergency Fleet Corporation, U. S. Shipping Board. He is to remain at Chester, Pennsylvania, having been assigned to the same plant with which he had been connected.

H. H. Stout, who at one time held a captain's rank, was commissioned a lieutenant-colonel of the Ordnance Corps, effective September 30. He was ordered to the Army War College for instruction in the duties of a staff officer.

Arthur Thatcher was present at the convention of A. I. M. E., held in Colorado, early in September.

J. B. Tyrrell, who has been absent from Toronto much of the past summer, is reported to have been examining chrome properties in the province of Quebec. Prior to undertaking this work he was in Newfoundland on a trip of reconnaissance.

G. D. Van Arsdale is now in the Southwest where he is carrying on metallurgical experiments.

C. W. Van Law has severed his connections with the U. S. Smelting, Refining and Mining Co., and will hereafter follow the practice of his profession independently.

Hugh R. Van Wagenen has left Denver to take charge as manager of the Canada Copper Corporation in British Columbia, vice Oscar Lachmund, resigned.

A. P. Watt is still another member to receive an appointment as consulting mining engineer to the U. S. Bureau of Mines. He will have in his immediate charge experimentation in the concentration of pyrites.

Arthur L. Walker has again taken up his professional work at Columbia University. Professor Walker is on leave, subject at any time to a call for service by the Ordnance Department.

C. M. Weld has taken charge of the Manganese Section of the War Minerals Investigation, U. S. Bureau of Mines, and will at the same time represent the Bureau on the Ferro-Alloys Section of the War Industries Board. The former is the body of which J. E. Spurr is the chief.

Bulkeley Wells, late in September, was in Montana examining properties.

Charles W. Whitley was absent from Salt Lake City, during September, on a holiday to the Pacific Coast.

Harry J. Wolf discusses at some length in the *Engineering and Mining Journal* the communication of another correspondent in which the desirability of determining the "method of mining" for any given mineral deposit, before samples are taken, is advanced.

Pope Yeatman, according to the *Engineering and Mining Journal*, has begun a campaign for the substitution of zinc for other more essential metals, with especial reference to aluminum.

MEMBERS OF THE SOCIETY WHO HAVE BEEN CALLED INTO THE SERVICE OF THE U. S. GOVERNMENT AND THE ALLIED ARMIES.

Lawrence Addicks.....Member, U. S. Naval Consulting Board
 Ralph Arnold.....Member, Board of Tax Reviewers
 Percy E. Barbour.....Capt., Engineer Corps
 Edwin S. Berry.....Capt., 27th Engineers
 Reginald W. Brock.....Major of Canadian forces
 Alfred H. Brooks.....Major, Engineer Corps, A. E. F.
 Gelasio Caetani.....Capt., 1st Reg. of Engineers, Italian Army
 M. F. Chase.....Dir. Explosives Division, War Ind. Board
 C. R. Claghorn.....Lt., U. S. Naval Reserve Force
 J. Morgan Clements.....Bur., Foreign and Domestic Commerce
 Welton J. Crook.....Officers' Training Camp
 Benedict Crowell....Major, Eng. Corps; Asst. Secretary of War
 W. B. Devereux, Jr.....Capt., Aviation Sect., Signal Corps
 J. S. Douglas....Maj. and Dir. Warehouses, American Red Cross
 Francis Drake.....British Aircraft Production Department
 A. S. Dwight.....Major, 11th Engineers, A. E. F.
 Baird Halberstadt....Fed. Fuel Administrator, Schuylkill Co., Pa.
 W. L. Honnold.....Am. Dir., Com. for Relief in Belgium
 Herbert C. Hoover.....U. S. Food Administrator
 D. C. Jackling.....Dir., U. S. Explosives Plants
 Donald M. Liddell.....Capt., Aviation Sect., Signal Corps

Halstead Lindsley.....	Major, Ordnance Corps
J. F. McClelland.....	Chief, Prod. Eng., Bur. Aircraft Prod.
Charles W. McMeekin.....	Major, Engineer Corps
C. H. Macnutt.....	Lt. of Engineers in Canadian forces
B. Magnus.....	Capt., Engineer Corps
W. W. Mein.....	Assistant to the Secretary of Agriculture
C. W. Merrill.....	Div. of Chemicals, U. S. Food Administration
H. G. Moulton.....	Engineer, War Industries Board
Seeley W. Mudd.....	Col. and Asst. Dir., U. S. Explosives Plants
O. B. Perry.....	Lt. Col., 27th Engineers
Joseph Hyde Pratt.....	Lt. Col., 105th Engineers, A. E. F.
A. L. Queneau.....	Officer Interpreter, French Army
M. L. Requa.....	Chief of Oil Div., U. S. Fuel Administration
Edgar Rickard.....	U. S. Food Administration
A. P. Rogers.....	Materials Dept., Signal Corps
W. L. Saunders.....	Chairman, U. S. Naval Consulting Board
Stanley C. Sears.....	Capt., Engineer Corps
Millard K. Shaler.....	Hon. Sec., Com. for Relief in Belgium
J. E. Spurr.....	U. S. Shipping Board
H. H. Stout.....	Lt. Col., Ordnance Corps
S. A. Taylor.....	Tech. Advisor, U. S. Fuel Administration
S. C. Thomson.....	War Export Board
Arthur L. Walker.....	Con. Met. to Chief of Ordnance, U. S. A.
William Young Westervelt....	Chairman, War Minerals Committee
Pope Yeatman.....	Chief, Non-Ferrous Metals Sec., War Ind. Brd.

DIED IN THE SERVICE OF THEIR COUNTRY.

William Hague.....	January 1, 1918
J. D. Irving.....	July 20, 1918

Mining and Metallurgical Society of America

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Bul. 126

ANNOUNCEMENTS.

Meeting of the Society.—The constitution of the Society stipulates that the annual meeting of the Society "shall be held on the second Tuesday in January of each year"; in 1919 it falls on January 14, the latest possible date. Individual notices will be mailed in due season.

By appointment of the President, Messrs. Cornell and Rubidge will act as tellers to poll the ballots for the annual election of officers and councillors.

New York Section.—The first winter's meeting of this Section occurred on November 13, at the Columbia University Club, New York, and, in accordance with its rules, the officers for the ensuing year were elected. The announcement is therefore made that Messrs. S. H. Ball, J. V. N. Dorr and F. F. Sharpless have become respectively, chairman, vice-chairman and secretary-treasurer; this is a re-election in the case of the two latter.

The proceedings of this meeting appear elsewhere in this issue, and it will be noted that not only was the attendance large, but that also a number of members from out of town were present.

Following the program which has been adopted, the evening's discussion was devoted to "Reconstruction," or "Re-adjustment" as Mr. Finlay calls it in the paper presented for him. It was, generally speaking, a get-together meeting for the purpose of determining the views of members as to what the detailed character and scope of the program should be.

Council.—An important meeting of the Council was held on November 4, to receive the Secretary's report on the nominations for officers and councillors and that of the Gold Medal Committee designating its choice of candidates for the 1919 medal.

A Council meeting took place also at the Columbia University Club, on November 13, just prior to a meeting of the New

York Section. In this case, the customary ten-day notice was waived for reasons of weight.

Detailed reports of these two meetings are printed in this issue of the **BULLETIN**.

Nominations.—The polls for the nomination of candidates for officers and councillors were closed as per schedule on November 4, the ballots were at once counted and a ticket was prepared by the Secretary, all in compliance with the provisions of the by-laws. Later, on the same day, the Secretary submitted his report to the Council, which adopted the election ballot appearing as a part of the minutes on page 363.

U. S. Geological Survey.—With the election ballots, printed notices were mailed by this office calling on the members to volunteer information as to their experience in the examination of ore bodies, or mineral districts, in countries "other than those in the United States." Without entering into the specific reasons for the request for data of this nature, it may be stated that they are required by the Geological Survey.

On the date of going to press, the response of the members has been most satisfactory. The Secretary will, however, be glad to hear from such members as have not as yet replied to the notice.

COMMUNICATIONS.

George C. Stone.—It will be remembered by those attending the New York Section meeting in September—the meeting called together to do honor to C. W. Purington—that Mr. Stone, who had only recently returned from Australasia, gave the members, at the request of the chairman, the benefit of his experiences in that region. But, unfortunately, the more formal business of the evening being over, no stenographic report was made of Mr. Stone's very interesting remarks.

Now, however, the Secretary is able to publish an account of this Australasian trip, kindly prepared by Mr. Stone just prior to his departure for Washington:

During my recent trip to Australia, I spent most of my time with one or both of our Australian members, Messrs. Gepp and Rigg. Gepp is now general manager of the Electrolytic Zinc Co., of Australasia, and Rigg technical director of the Broken Hill Associated Smelters, both of which companies are controlled by the same interests, so that their work frequently brings them together.

Gepp has done a really remarkable piece of work since his return to Australasia, having adapted the electrolytic process to his ore and conditions, planned and built his plant, and got it in commercial operation in less than a year. The plant is located at Hobart, Tasmania, and is regularly making 10 gross tons per day of spelter running very uniformly 92.96 per cent. zinc (by difference). The plant could make more if sufficient power were available. The present cost is low enough to show a profit which will be much increased when it is possible to operate at full capacity.

The power is obtained from the Tasmanian government and the natural conditions are almost ideal. The water supply is from the Great Lake located in the central plateau and has an area of about 50 square miles and a catchment basin of several hundred, with an average rainfall of 30 to 40 inches. The present dam is at the south end of the lake, on rock, and only about 200 feet long but raised the level about 7 feet. The dam can be raised an additional 10 feet by increasing its length to about 500 feet, giving a very largely increased storage. If this is done the head waters of the river Ouse could be diverted into the lake by a canal about 3 miles long.

The Ouse has nearly as large a catchment basin as the lake and a much heavier rainfall and its addition to the present supply would increase the available power from about 50,000 to 100,000 h.p. The outlet of the lake is the river Shannon, the water of which is diverted to a canal about 7 miles from the lake. The canal is about 3 miles long, through nearly level country, to a large but shallow storage pond, from which the water is taken by pipes with a very steep drop to the power station at Wadannanna on the Ouse, giving an effective head of 1,100 feet. While the Ouse rises a little above the lake it runs over soft rock and has a fall of over 1,500 feet to Wadannanna, while the lake and Shannon flowing over hard dolomite, fall only about 300 feet in practically the same distance. The power is 3 phase generated at 6600 volts and stepped up by transformers to 88,000 for transmission to Hobart about 70 miles to the south.

When the additional water supply from the Ouse is taken, it is contemplated to run a canal north from the lake for about 7 or 8 miles to the north edge of the plateau, where an effective head of 1,400 feet can be obtained only 25 miles from Launceston, the second city of Tasmania. The contract with the Electrolytic Zinc Co. provides for power at 2 pounds sterling per h.p. year.

During a trip around Tasmania, I visited a number of mines and smelters. The first was the old Anchor Tin Mine near Lottah, northeast Tasmania, which had not been in operation for some time, but was being put in shape for working. The ore is a hard granite containing about 0.4 per cent. of tin. It is overlaid by a light cover of soil which is put through sluices as it is removed. It pays to sluice it, though it would not pay to work it if doing so did not uncover the ore beneath. The project is to crush the ore with breakers and rolls and treat it on jigs and tables.

The Briscis mine at Derby, about 15 miles west of Lottah, is the oldest and largest alluvial working in Tasmania. At present they are working under the old bed of the river, which has been diverted—and which they expect to move again so as to be able to work under the present bed. The ore is washed down by hydraulic nozzle with a head of 200 or 300 feet and pumped up to the sluice box by centrifugals and the tailings delivered by gravity to the dumps in the worked out end of the cut.

The sluice is a box about 16 feet wide and 3 feet deep and 150 or more long. It has riffles about 20 feet apart reaching nearly to the top of the box; the upper 4 inches of each is removable. The ore settles just below the riffles and the sand beyond it. When the first riffle is full the

top bar is taken off and the sand allowed to flow over into the second until tin shows at the riffle. The top bar is then replaced. It is worked along in this way until all the riffles are full; the flow is then shut off and the concentrates which contain about 70 per cent. tin are taken from the top compartment, and from the next also if clean enough, and shipped. The contents of each lower compartment are then shoveled into the one above and the operation resumed. It was claimed that material yielding 3 lbs. of tin per cubic yard could be worked at a profit.

The most celebrated tin mine in Tasmania is the Mt. Bischoff at Waratah in northwest Tasmania. It was by far the richest tin mine in the world, the old "Brown Face" running 40 per cent. The early methods of concentrating were very wasteful and nearly half of the tin was lost. Unfortunately, the tailings were run into the White River, which has a very rocky bottom and a fall of over 2,000 feet to the coast, less than 30 miles away, and the numerous floods have washed them all away. The ore is surrounded by a semi-circular dike of barren eruptive and is a mixture of slates, pyrite and gossan, which have been mixed up and overturned in a most remarkable way, the pyrite often being above the gossan. The material mined is all soft and requires no blasting. There are some very rich pockets, but the ore as a whole only runs about 0.3 per cent.

The ore is taken to the mill by gravity on a cableway about three-quarters of a mile long with a fall of 500 feet. It is crushed by eight batteries of 5 stamps each. This is admittedly not economical, but the expense of replacing the stamps by better machinery is not justified by the probable life of the mine. The pulp is divided into three sizes, the two coarser going to 2-compartment harz jigs which recover about 60 per cent. of the tin as a very rich concentrate. The fines from the stamps are classified and treated on tables which recover about 90 per cent. of the tin. The jig tailings are recrushed in a short tube mill, classified and tabled. The total recovery is about 80 per cent. in a concentrate containing 70 per cent. tin. It rains here about 250 days a year, the average precipitation being about 100 inches.

With tin at 160 pounds sterling per ton, the mine can just pay expenses on ore containing 0.26 per cent tin. Mr. J. D. Millen, the manager, has done some remarkable work in studying the deposit structurally, chemically and microscopically. The proof of the value of his work is that he has been paying dividends regularly from a mine that he was sent to close down eight years ago.

There is a small tin smelter at St. Helens on the east coast, but it has not been worked for years and probably will not be again. All of the Tasmanian tin ore is smelted at the works of the Mt. Bischoff Co. at Launceston. The ore is mixed with coal, iron ore and limestone, and smelted in small reverberatories, giving a fairly pure tin and slags containing 6 to 30 per cent. tin. The tin is refined by poling until tests show it is of the proper physical character. The rich slags are resmelted in reverberatories with the addition of scrap iron, limestone and coke. The resulting slag contains about $2\frac{1}{2}$ per cent. tin. The metal is very impure and is first liquated and then refined, the dross being reworked.

We visited an interesting iron deposit on the Blythe River (N. W. Tasmania). The deposit in places stands above the surface as a high ridge without sides, and test pits have been put in at wide intervals for a mile or more. At all points, the ore is of the same character, a very hard rich blue specular, looking precisely like the ore of Pilot Knob, Missouri.

At Broken Hill, the mine of the Proprietary is nearly worked out as this deposit is there only about 400 feet deep. The whole deposit has

proved to be an inverted U and the two largest deposits are the North and South mines. At the South they are now down 1,750 feet, with an unknown depth of ore below them. The lower workings, and drill holes in advance of them, indicate that there is still a large amount of undeveloped ore.

All of the mills are using different flotation. Very small amounts of acid and oil, or in some cases acid only, are added and the lead floated. The lead concentrate contains 58 to 60 per cent. lead and 7 to 8.5 per cent. zinc most of the silver going with the lead. In several cases SO_2 is added to prevent the zinc from floating. More acid and oil are added and the zinc floated. Cu SO_4 is often added at this stage and is said to have a remarkable effect, 0.20 lbs. being said to produce the same effect as 200 lbs. of acid. The zinc concentrate contains 47 to 50 per cent. zinc, 5 to 7 per cent. lead and 4 to 9 per cent. silver.

The recoveries vary considerably at the different mines, lead being from 79 to 84 per cent. with an additional 9 to 10 per cent. in the zinc concentrate, part of which is recovered. Zinc recoveries vary much more, mainly because some do, and others do not, float their slimes. Recoveries of zinc are 60 to 83 per cent., 60 to 66 per cent. of the silver is in the lead concentrates and 25 to 30 per cent. in the zinc, part of which is recovered.

Several forms of flotation machines are used, most of which are of the well known types with mechanical agitation. Recently many have adopted the cascade system, with a considerable lowering in cost and without injuring the grade of the product or recovery. In this, the ore pulp is elevated by bucket elevators and flows down through a series of nine boxes, each of which has several nozzles acting as injectors with controlled air admission. These discharge below the surface of the liquid in the next lower box. The concentrates from the first six are usually shipped and those from the last three retreated.

At present no smelting is done at Broken Hill as all of the mines but the Proprietary, which has its own smelter, have formed the Broken Hill Associated Smelters with a plant at Port Pirie. All of the lead concentrates produced and part of the zinc are smelted there.

The labor situation in Australia is very unsatisfactory. Men are very scarce as many new industries have been started, and there is a great shortage of labor due to the large number of the best men who have gone into the army. Nearly 8 per cent. of the entire population of Australia have enlisted, and about 10 per cent. of the population of New Zealand. The labor unions have control of the government and all rates and working hours are by government regulations. The Australian is a curious contradiction; he is violently democratic but wants a very paternal government and not only submits to, but asks for an amount of government interference in all of his affairs that would be strongly resented here. He is also very loyal to the Empire, but has a very poor opinion of Englishmen and, in many ways, of England. The Australian workmen, as far as I could judge in the short time I was there, are not a bad lot and have in general a good idea of fair play. Much of the trouble there has undoubtedly been due to misunderstanding on both sides and is quite as much caused by the employers not knowing how to treat their men as by the men. In many cases, the feeling seems to be that trouble is inevitable and that there is no use in trying to prevent it. At Broken Hill very little has been done towards making working and living conditions either comfortable or even safe, and Broken Hill is a by-word in Australia for trouble. The living conditions are very bad, houses poor and very expensive; change houses, in many cases,

have only recently been provided. There are many signs of changed ideas and it is probable that the next year or two will show much improvement.

At Port Pirie, the relations of the company and men are remarkably good, having completely changed since the Broken Hill Associated Smelters took control. There, as everywhere, had been many demands for more pay and the last was for "a bob a day," which the men received. Shortly after some of the men came to the management and said, "This extra pay is no use, we got an extra bob a day and the boarding houses immediately raised their prices three bob a week, and all the stores put up their prices, so we are no better off. Help us to live more cheaply." The company at once agreed, and the first thing taken up was fire wood, which is both scarce and expensive at Port Pirie. The company bought the wood on a tract of land on the opposite side of Spencer's Gulf, built a landing and put up buildings and water tanks. It then formed a committee, a majority of whom were employees with a couple of representatives of the company, to arrange for cutting and delivering the wood. This proved of wonderful educational value. Most of such co-operative schemes have failed for one of two reasons, either they were run as a charity by the company, which did not suit the men, or were turned over to the men completely, who did not have the necessary business experience to run them. At Port Pirie they did neither. The representatives of the company were some of its best men who steered things along rational business lines, letting the men propose arrangements and voting for them if reasonable, and if not starting a debate which lasted until some of the men did make a reasonable proposition. The first trouble at the wood yard was that the men sawing loafed. The committee was shocked and grieved to find that loafing increased the cost and promptly disciplined the offenders. The next question was delivery; bids were asked for, and they varied from about two/six to seven/six. This was another shock, if they paid more for labor, the wood would cost them more.

The next move was a co-operative shoe store, which has been in operation several months and is saving the average married man about one shilling a day. A small line of clothing has been added, and it is now proposed to build a larger building and increase this department. Any man employed by the company, or a member of his family, and no one else, can buy at this store but only for cash and he must take home his own purchases. Arrangements were being made to start a butcher shop, which it was figured would save 2d to 3d per lb. on meat. As the Australians are very large eaters, this will be a considerable item. All of these activities are managed like the wood-yard, by joint committees of the company and men. The company advances the necessary capital and receives small interest on it, and everything is sold at cost, plus a small percentage to cover contingent expenses.

The secret of the success is in the character of the men the company has put on the committees. At the Electrolytic Zinc Co., where similar work is under way, the general manager of the company is the chairman of the principal committee and the other representatives of the company are heads of departments.

I attended one of the meetings and was much interested in the way it was worked to make the men take the initiative on rational lines. The men have a good idea of what is fair, and will agree to it. At Port Pirie, a vacation camp is being built to which the men can go with their families. Any man who has not missed more than 12 days for causes other than physical disability is entitled to two weeks in camp with full pay. In counting absence, if a man notifies his foreman he is debited with the time he is

absent, if he does not, he is debited with time-and-a-half. The men at once agreed to this, saying "We get time-and-a-half for overtime work, this is the same thing."

When Port Pirie was laid out, a considerable amount of land was reserved for a park but nothing was ever done with it until last year, when it was proposed at one of the committee meetings that volunteers give a day's work each and that the company furnish the necessary materials to reclaim part of this land. It was done at once and they now have an attractive park of about 10 acres. The town employs a couple of men to keep it in order and if any extra work is required it is done by volunteers, of whom there are always plenty. This year it is proposed to build a children's play-ground on an additional 10 acres of this land in one day. When I left, over 4,000 men and 1,000 women had volunteered for this work. The ground was marked out and the apparatus and buildings (in sections) were being prepared for it. As with the park, the company furnishes the material but the labor is all volunteer.

Largely as a result of such work Port Pirie was the only large works in Australia that kept in operation during the big strike last year that closed down almost everything in Australia for weeks.

American Zinc Institute.—From S. S. Tuthill, secretary, this office has received the well printed, paper-bound, "Report of Organization Proceedings," of the newly organized American Zinc Institute. The meetings which are covered by these proceedings, is that held in St. Louis on July 29 and 30 by the A. Z. I. as a whole, and that of the organization committee of seven which took place on September 20 in Chicago.

Copy of the constitution and by-laws, together with ballot containing the nominations for officers and directors of the A. Z. I., have also come to hand. It appears that there are to be 21 directors and that some are specifically selected to represent the mining and some the smelting interests.

Now, that these proceedings are in print, it can be seen that very definite progress has been made in the "closer co-operation and co-ordination of the zinc industry in the United States," which, as stated by the chairman at the opening of the meeting, is the purpose of the A. Z. I. The chairman, at this same time, gave Pope Yeatman the credit for initiating the A. Z. I., and later added that, if Mr. Yeatman is the father of the A. Z. I., so then is W. R. Ingalls father of the zinc industry.

As announced in the August BULLETIN, Mr. Ingalls addressed the convention in the first session, but it was not known at that time that, among many other addresses, two were made by Messrs. J. L. Bruce and Arthur Thacher.

Czecho-Slovak Republic.—It will be remembered that, during C. W. Purington's visit to New York, the Czecho-Slovak nation obtained the recognition of the United States, and that

in consequence a telegram of congratulations was sent, on behalf of the American Committee of Engineers in London and the M. M. S. A., to Professor T. G. Masaryk, who had done so much to make this action of our Government possible.

When, therefore, it was announced by the public press on November 11 that Professor Masaryk had become the first President of the Czecho-Slovak Republic, it seemed to the Council of the Society entirely fitting that this event should also be recognized. Reference to the proceedings of the meeting of November 13, appearing on page 368, of this BULLETIN, will disclose the action taken by the Council and text of congratulatory telegram adopted. Since then, the Secretary has received the self-explanatory letter which is printed below:

CZECHOSLOVAK NATIONAL COUNCIL
COMMISSIONER IN THE UNITED STATES

November 16, 1918.

Mining and Metallurgical Society of America,
115 Broadway, New York, N. Y.

Gentlemen:

On behalf of President Masaryk, I wish to acknowledge your favor of the 14th inst., with enclosed copy of a day letter, and to thank you heartily for your sentiments therein expressed. I am very sorry that the President cannot thank you himself, but he has already left Washington.

Ultimately all these matters will be brought to his attention in Prague, and I am sure he will prize highly your kind attention.

Very truly yours,

CHARLES PERGLER,

Commissioner in the United States.

3520 16th St., N. W.,
Washington, D. C.

Paper Conservation.—The circular letter from the War Industries Board requesting co-operation in a campaign to prevent the waste of paper, published in the September BULLETIN, has resulted in the receipt by the Secretary of communications from C. R. Corning and from A. J. Yungbluth, of the Lake Superior Mining Institute.

Mr. Corning calls attention to the fact that the Government itself is wasteful in its use of paper, whereas the letter from Mr. Yungbluth, after expressing his approval of the effort now under way to conserve paper, points out that much of the so-called "War Advertising" should be greatly curtailed.

In this matter of the conservation of paper, it is only fair to say that one Government bureau, at least, has seen fit to proclaim the need of a general saving, which, by the method adopted,

will include that of paper. Above the usual letter-head of the U. S. Geological Survey appears the following statement in red ink:

With our country at war save time, money and effort by NOT acknowledging this letter unless you wish further information. If the Geological Survey has served you it has simply done its duty and will take your appreciation for granted.

In this connection, one other way of conserving paper, perhaps not generally recognized, is that of printing the carbons of replies to letters received on the reverse side of the letter-heads themselves. Here there is not only a saving of paper, but also of filing space, and it furthermore makes for convenience.

Copper Regulations.—The Secretary's attention has been called to an article in *The New York Times* which reports a meeting, called for November 15 by the chairman of the War Industries Board, to consider the copper situation in the light of new conditions. An agreement was reached to remain effective until January 1, embodying the following general principles:

1. The present rate of copper production to be maintained.
2. The existing level of prices and scale of wages to be preserved.
3. The regulation of prices and allocation of the metal to be continued by Government agencies.

It is understood that the time limit of this agreement will be extended after January 1, unless revision is thought to be required.

MEETINGS OF SECTIONS.

NEW YORK SECTION.

Meeting of November 13, 1918.

The first regular meeting of the New York Section, M. and M. Society, for the season 1918-1919, took place at the Columbia University Club, on Wednesday evening, November 13. As usual, an informal dinner preceded the business meeting.

The following named members were present: F. C. Alsdorf, S. H. Ball, J. P. Channing, Lieut. C. R. Claghorn, C. R. Corning, J. V. N. Dorris, C. V. Drew, A. E. Drucker, L. C. Graton, L. D. Huntoon, W. R. Ingalls, J. V. Lewis, E. Ludlow, A. C. Ludlum, W. W. Mein, G. A. Packard, R. Peele, F. E. Pierce, E. M. Rogers, F. Rutherford, F. F. Sharpless, O. Sussman, G. D. Van Arsdale, A. L. Walker, A. P. Watt, F. R. Weekes, H. A. Wentworth and G. J. Young. The guests who attended were

as follows: C. S. Ackley, A. W. Allen, Ensign A. M. Bachman, C. W. Boise, S. C. Browne, Capt. E. Dulieux, E. Gayford, A. Locke, J. de Morinni, M. D. Riker, J. W. Smith, E. B. Sturgis and L. Whiting.

In the absence of H. H. Knox, chairman of the New York Section, Mr. Dorr, the vice-chairman, called the meeting to order. Thereupon Mr. Sharpless, Secretary-Treasurer of the Section, submitted a financial statement of the previous year. This report, showing a small balance on hand, received the approval of the meeting.

The election of New York Section officers for the ensuing year followed and resulted in the election of S. H. Ball for chairman, and the re-election of J. V. N. Dorr and F. F. Sharpless, for vice-chairman and secretary-treasurer, respectively. A motion was then carried empowering the chairman to appoint two additional members to the Executive Committee of the Section, which, by regulation, includes the officers only.

The Chairman.—The subject of the meeting to-day, gentlemen, is the participation of mining engineers in reconstruction work. Since our last meeting peace has come to us and I think we all realize, as much as we may rejoice, that the responsibilities which are now coming to us are going to be greater, if that is possible, than they have been in the last year.

In December, 1916, I was talking to an English engineer who was here in this country and he said at that time that he very seriously questioned whether England had learned enough lessons from the war and whether it wouldn't be well for war to go on two years longer. I do not know whether he was right, or not, but if that is at all true, it is certain now that we Americans have got to learn a great deal from our comparatively small participation in the war, and have got to use our utmost efforts to see that we get the full benefits of the lessons derived thereby to participate properly in reconstruction work.

Suggestions have been made by a number of members of the New York Section regarding the work that is contemplated. I feel that the subjects to be considered should not be technical and that, at the same time, they should be subjects that apply especially to the kind of work that the Society is interested in; in other words, we shouldn't reach out too broadly but should try to make our meetings such that we shall all learn a great deal, and be able to participate as individuals to greater advantage in reconstruction work, and that they should enable the Society, as a whole, to participate to the greatest advantage.

Mr. Finlay has written a letter to our Secretary and I will ask him to read it.

The Secretary.—Sometime ago the Executive Committee of the Section held a meeting and tried to shape up some sort of a program for this evening. After this meeting, those that attended submitted what they considered suitable programs for the winter, and Mr. Finlay, who was one of them, wrote a letter looking rather broadly over the situation. He was thereupon asked to prepare the first paper, following the presentation of which particular subjects may be taken up as they are proposed. As Mr. Finlay could not be with us to-night he has sent me this letter, which I will now read:

READJUSTMENT NOT RECONSTRUCTION.

I wish to call your attention to some simple matters of arithmetic and geography which we used to learn in school but which some of us may have forgotten. One of these familiar statements was that the United States is about as big as the whole of Europe. Some of our doctrinaire friends will undoubtedly have a contemptuous answer to this recollection of geography; saying, perhaps, that the school books never ought to have said any such thing; that space is not greatness; that our presumed bigness is a mere aggravation of our littleness; for are we not little in spirit, art and ideas? But while I do not wish to be placed in the spread-eagle class of patriots, I wish to disagree with the self-disparaging doctrinaires and join forces with the geographers.

That the United States is, in sober truth, equal to the whole of Europe in those elements that constitute national strength—industrial, political, military, or naval—is the main fact to consider in all discussions of reconstruction. Moreover, I imagine that well informed men in Europe recognize the fact more clearly than we do.

To prove this thing we shall have to get down to arithmetic, but before we can apply the arithmetic, perhaps it is necessary to call attention to the axioms with which we start. The war has proved one thing so thoroughly that we may take it for an axiom, namely: that the mass of military power is about equal to the mass of industrial power. The same organizing forces that create one create the other. A weak industrial nation is not a great military nation, and the people who try to make it so will find that they are building up a sophistry. On the other hand, a strong industrial nation is not necessarily military, but that is a matter of its own option. It can be, whenever it wants to be; and it will want to be whenever it feels a necessity strong enough.

Another axiom is that political power, international influence, is in proportion to this interchangeable industrial or military power. I say power, not the assertion of power, or the use of it. The fact that some clever leader in an inferior nation may attract great attention in international affairs and give his country the appearance of power may be due wholly to the fact that some superior nation does not oppose him. It may have no reason to, or it may not have a leader who can use its power.

Another axiom is that the industrial power of a nation is not measured by gold or by foreign trade or by bank statements. It is simply the producing capacity of the people, which will be a function of their numbers multiplied by their efficiency and again by their natural resources.

Another axiom, which brings us nearer home, is that industrial power is based on mining, for the fundamentals of manufacture are dug out of the ground. You cannot make machinery without an assemblage of metals; and you cannot produce metals without fuel, or run machinery without it.

Still another axiom is that the cheapest place to manufacture iron is the cheapest place to manufacture machinery and the cheapest place to run that machinery. Therefore, industrial activity centers in the area of iron manufacture.

I have called all these statements axioms, because they seem so to me. They may not be accepted without question; but I think they will stand analysis and I accept them as starting points for political and economic speculations.

If these statements are true what is the arithmetic?

This country uses as much coal as all Europe put together, 600,000,000 tons a year. It produces as much iron as all Europe put together; and twice as much copper as all the rest of the world. It has as much land as all Europe put together, and the land is just as good, if not better.

Capital is produced not by a mass of peasants, however industrious those peasants may be. The Chinese are industrious, but they have no capital. The Russians are sturdy workers, but they have no capital. Capital is produced by profitable and organized industries. By this measure we shall find that we produce as much capital as all Europe put together. The question of how that capital is used, whether it is invested at home or in foreign countries, has nothing to do with its existence.

It strikes me that the amount of coal consumed by a nation is a fair though perhaps a rough measure of the use of machinery, as well as of the organization of industry. This measure has excited indignation, I believe, among some, but it isn't so bad. A better measure would be the sum total of mechanical power, but the statistics of that, outside of coal, are not so easily had. We use our share of water power and of gas power too, probably in full proportion. Some critics complain that this mass of crude force is no measure of soul, of intelligence or of grace. Perhaps it isn't, but our most soulful national competitors would like to have it, just the same. I do not claim that machinery produces our intelligence, I claim that our intelligence produces the machinery. Judged by the amount of machinery we produce, we may claim considerable intelligence. I am willing to believe that moral, artistic and other desirable qualities are somewhere tucked away in that intelligence.

It is, of course, a fair criticism that we may be producing enormously simply because it is easy to produce in this country, because of the virgin resources of the continent; that we may be centering on mere production and not on making an economical use of what we produce. That is a fair field for inquiry, but a true comparison with other nations would be difficult to make. It is quite to be taken for granted that other nations excel us in many respects, even in the field of industry, and that they always will. But, as compared with other countries, we do not seem to be putting an undue strain upon our resources. Half the known coal of the world is in the United States, five times as much as in Europe.

But what has all this to do with reconstruction? Have not these facts been measurably true any time these past twenty-five years?

Yes, they have been true, but it took a war to make ourselves and the rest of the world conscious of it. That is the function of wars. A war is not won by chance, although there is a big element of chance in it, but by the operation of forces that were in existence before the war began. In

making plans for the future it is necessary to pay attention to the proportion of things which has been established by the war.

This country, or to speak a little more comprehensively, North America, comes out in a position strangely parallel to that of the British Isles at the end of the Napoleonic wars. England was practically uninjured in that struggle. Her armies fought only in a limited field and in small numbers. Her chief effort was at sea. Her losses of men were spread over a period of more than twenty years. Business at home was generally prosperous and the country was the acknowledged leader, not only in the new processes of manufacture based on the use of steam, but in volume of production and in capital. England was the international banker as well as the distributor of the world's goods and the greatest manufacturer. She was a creditor nation and her trade policy was shortly to be changed in accordance with that fact. Her international influence was supreme in proportion to the weight of all these reasons. For many decades this position of England seemed impregnable. She finally lost her position as the greatest iron producer and also, no doubt, as the greatest wealth producer, first to the United States about 1890 and then to Germany a decade or so later. The industrial power of the United States is, at present, about twice that of the entire British Empire. If we group Canada in the industrial sphere of the United States, where it assuredly belongs, we shall find the disparity to be much greater; and it is bound to increase without any visible limit.

In the meantime the nations of Europe are hurt. They will soon make up their losses in population, no doubt, if they can regain their prosperity. England is the least injured of the Allies, but she has not gotten off so easy this time. She has lost two millions of men in killed and seriously wounded, she has been brought to contemplate starvation as a practical possibility, and her industrial equipment, notably her merchant marine, has suffered considerable depreciation. Moreover, she has lost so much money that she has probably lost her position as a creditor nation, certainly so far as the United States is concerned. On the continent, the chief industrial nations have suffered an industrial loss which might be likened to a destruction of working capital and an enormous depreciation of plant. It is notorious that the railroads all over Europe are terribly run down. I am not talking about the area of the battle fields upon which attention has been concentrated, but about almost the whole area of the continent.

In Germany this loss of working capital has been prodigious, beyond doubt. Take for instance her position in copper. Her normal business during the war period would have caused her to import 1,000,000 tons of copper from the United States. She probably needs that much to-day. She is no doubt in the same position regarding many other staples, such as cotton, wool and rubber. In depleting her working capital thus, she has lost the power of paying freely for new supplies. Moreover her plants are run down and need repair. Thus, as a business concern Germany is no longer in the first class, but is one of those that have to stagger along with out-of-date equipment and hand to mouth finance. In addition, she will be compelled to go to countries that have just been her enemies to find the supplies with which to keep her people busy, and in those countries her agents will be met with some hostility and suspicion for some time to come.

In Europe they have a real problem of reconstruction, compared to which we have no problem at all. Not a window pane has been broken in this country, or in any of its dependencies, by the direct action of war. Our military losses are so small that it is quite possible that the death rate in 1918 will prove to be less than in 1916, so small at any rate that it will have no visible effect on the vital statistics. Our industrial equipment is in as good shape as ever. Our business is suffering only from shortage of

labor caused partly by an excessive demand for our products, but mainly by the diversion of young men into the army and into those industries that directly supply armies.

The return of all these men, and women too by the way, into peaceful and permanent occupations is the main problem. There is no end of material to work with. The only thing to find out is what we wish to make and what we wish to have. It will be readjustment, not reconstruction. It will not be overhauling the car, but merely resetting the timing gear. There are no particular new problems but perhaps an accentuation of old ones.

I think the main thing will be to adjust our ideas to our new international position. That will bring us new interests and probably some day a change of national policy. The change amounts to this; in former times we went to foreign countries for money, now they will come to us. The lender is the banker. We are already a creditor nation to the extent of a good many billions and I imagine that the part we shall play in the reconstruction of Europe will add a good many billions more. In the days before the war who ever heard of an American buying the bonds of foreign governments? Now look at the list published every day in the Stock Exchange reports! Our banks have begun to establish branch offices in foreign countries. It is probable that they will find increasing reason to do so. I suppose that we shall soon be trading in bonds and stocks, not only of foreign nations and cities, but also of foreign business enterprises.

While the process is going on there will of course continue to be an excess of exports over imports, but that excess will be an investment made in foreign countries on which we shall expect a return of interest and principal. It constitutes a growing claim on the production of those countries. The moment the investment ceases, the payment of interest will mean an excess of imports over exports. That is the position of a creditor nation. International balances must be paid in goods. It would do this country no good to have Europeans send us all their gold with which to buy our own goods. We have those goods without buying them. The real function and value of the gold paid us by foreigners is to enable us to buy goods in foreign countries.

Now the logical attitude of a creditor nation is different from that of a debtor nation. It seems to me that the former is pretty sure to lean toward free trade and to be less anxious to increase its population. However that may be, it is certain that a creditor nation, which only becomes a creditor by virtue of investments abroad, is bound to take a deeper interest in the affairs of other countries.

To the extent to which we have arrived at this position, our business men, as well as our government, are already compelled to know more about the resources, and the economic and political condition, of the rest of the world. Our State Department will play a more important part in the government than it ever has before, and will continue to do so. I should think that Department would do well to cultivate sound advisers on the broad subject of international economics.

Some people have a dread of what other nations may do in the way of dumping cheap goods on our markets. I find it impossible to sympathize with these fears. We can be no richer than we can make ourselves with our own labor. So long as that is well employed on our amazing natural resources we are bound to be the richest people in the world, and the more other peoples produce the better we shall be off. There is much more profit and satisfaction in dealing with a prosperous nation than with a disordered and bankrupt nation. Those who fear foreign competition, it

seems to me, are afraid not of the foreigners, but of their own unwillingness to adjust themselves to the facts. That is the real problem—to engage only in such business as our resources are adequate for and to avoid those enterprises for which our resources are not adequate. For instance, suppose we can make potash at twice the cost that the Germans can sell it for. If we persist in making it ourselves, we shall, by virtue of a tariff, certainly be keeping business away from the Germans, but with equal certainty we shall be making our own people pay for the privilege. In cases where it is a matter of distinct public policy, such as a provision against shortage in time of war, there may be good reason for promoting such unprofitable enterprises, but we are entitled to make such provision in the cheapest way and that way is not likely to be accompanied by a permanent burden upon the people.

Such is, to my notion, the broad economic outlook of the United States upon the rest of the world. The interest of the mining industry in all this is primarily the interest of some 10 or 12 per cent of our population and secondly the interest of the industry that is responsible for the commanding position of this country in the affairs of the world. Our mines furnish the basic staples which make our manufacturing area the great clearing house of the world's trade, not the only one but incomparably the greatest one in the possession of any nation. Recent events have shown that we are not detached from the rest of the world and also that we have a giant's power. There will be a certain temptation to use this power to exploit blatant conceits and emotional fancies, as well as new social and economic theories. We shall have more need than ever for sound education and common sense. It is to be hoped that the soldiers we now have in France, who are the flower of the country's youth, will bring back a respect for the opinions of other people, some knowledge of the foreign point of view and a desire to know something of the world as a whole. These men will soon be the leaders of this nation and I believe that theirs is the duty of steering it in a new step forward. Those who went over first were probably among the best of these men. It would only be fair to them, and probably the best thing for the country, that those who went first should come back first. Among them were some of the most intelligent and enterprising; the very men most capable of making a place for themselves and who can add most to the constructive ability needed to adjust things here.

The Chairman.—I think that Mr. Finlay has covered the situation in a very interesting and valuable manner. I will now ask Mr. Ingalls to say something.

Mr. Ingalls.—Mr. Finlay has expressed the fundamentals in a way that nobody except himself could have done. He has the gift of seeing the fundamentals that are going to determine conditions. This Society is anxious to enter upon the work of reconstruction, or readjustment, as Mr. Finlay has so happily stated, in such a way as to work out to the best advantage. It seems to me that the usefulness of this Society may be most in confining itself to those details of which it knows most and those are the details that relate to mining and metallurgy, because those are our professions. There will be many broad problems of policy to be determined by economic experts and lawgivers in which we shall be deeply interested, to which we

ought to give our thought and attention, but in which connection nevertheless our own influence—one little effort among many—will be very small. But in matters relating to the mining and metallurgical industry, our efforts, the results of our thought and study, may be very great, because it is about those things that we know most.

Mr. Finlay in his broad generalization has afforded a few hints as to what I mean. He has stated that hereafter it will be necessary for us in this country to know a great deal more about the affairs in foreign countries than we have done up to the present. Translating that thought into our own terms, I take it to mean that we, the Society and other exponents of the mining and metallurgical industry, ought to be able to present the information respecting the status of our industries in foreign countries that our lawgivers and executives will need. Similarly he has touched on the question of potash. That may not perhaps come especially within our province, it may rather belong to the field of the chemical engineer, but nevertheless it will afford an apt illustration of the thought that is in my mind.

Mr. Finlay says that we can produce potash only at a cost greater than the cost abroad and that in war time it was perfectly proper for us to produce that substance here regardless of cost, but in future that may not be so. Now, there may be many controversies over just such points; what is the cost of producing potash? What is the cost of producing many other things that directly relate to our own industries? We of this profession and particularly we of this Society ought to be able to furnish data on such questions that will be scientific data, the result of calm study, careful investigation, uninfluenced by such emotions as have often during the last strenuous year and a half swayed us in the wrong direction. We ought to be able to furnish to our Chambers of Commerce and to our Congress the exact facts that will guide them in policies that relate to such questions, and it seems to me that that is the great work which confronts this Society during the coming year, that it is work of that kind and questions of that kind to which we especially ought to direct our attention. (Applause.)

The Chairman.—I think that there is no man in the Society who has paid more attention to the problem of labor in its largest and broadest sense than Mr. Channing, so I will ask him to say something to the members in regard to labor in reconstruction. (Applause.)

Mr. Channing.—The Chairman gives me credit for more than I feel I am capable of expressing. I think undoubtedly

that in our reconstruction we will have to give a very great deal of consideration to labor in this country. Labor has backed us up in the war, it has backed us up pretty nearly as well as it has in England and while I think the laborer has got a good deal out of the war in a financial way he has not gone to the limit.

I think that the one thing that we must be careful of in our readjustment of industrial conditions, which perhaps is a better word than reconstruction, is to see that labor gets its fair share. It would be manifestly unfair for us to suddenly throw a tremendous number of men out of the war industries upon a cold world and expect them to find new positions automatically—it would be manifestly unfair for us to bring our 2,000,000 men from abroad and to suddenly demobilize them, and to demobilize the 1,700,000 we have here in camps, throwing them upon the country and leaving them to find places for themselves. I am not a believer in paternalism, but I do believe that, inasmuch as the Government has used its powers drastically to take us from peaceful pursuits into war pursuits, it is a function of the Government to see that we are translated from our war program to an industrial program—and when I say the Government, I simply mean the Government as representing the people as a whole. In other words, I think it is economically better that the people as a whole should be taxed in order that adjustment will be brought about in a logical and a proper manner.

There are a great many employers of the old school who are gloating, and who are saying, "We are going to get our innings now; there are going to be several million men thrown upon the market and labor is going to pot and we are going to get cheap labor." I am not a believer in cheap labor and I don't think that this country should stand for anything of that kind. Undoubtedly the cost of living for the laboring man was high during the war, but I am not sure whether, as a whole, his wages have not advanced in proportion to the increased cost of living. It may have been so in some of the industries, not in all of them. Then, of course, 99 per cent. of the laboring men aren't saving, and although here was a fine opportunity for them to save the vast majority of them did not. We know that the cost of food isn't going to go down rapidly, because we are short of food—the world is short of food; we will have to furnish Europe and that means prices will be high, and so I, for my part, would dislike very much to see wages cut down to any pre-war rate. I think, of course, that there is one thing that the war has demonstrated, and it has been demonstrated more in Europe than it has here, and that is what the laboring

man really can do if he will be efficient. I believe that in some of the engineering branches in England the output per day of the men has been ten times what it was before the war.

I believe that during this readjustment period, and probably for some time afterwards, we should maintain wages at a fairly good level. What we all want is to make the men in this country good American citizens, men who are satisfied with their condition and who, if they are fairly economical and have some idea of finance, can live decently, can bring up their children properly and educate them, or, in other words, keep up the standard of living in this country.

I think that usually after a war the trouble in starting up a peace industry is the difficulty the employer finds in getting the proper capital. I am of the opinion that the Government should go as far, as it has in the helping out of war industries, in helping a perfectly legitimate industry which should operate after the war to obtain the necessary credit, or the necessary capital, so that it can go ahead. There is no doubt that there is a tremendous amount of work to be done, that there is a tremendous amount of manufacturing, of every imaginable thing that one can think of, to be done to furnish the foreign countries with materials in place of those destroyed, or to supply the materials they haven't produced because of disorganized conditions. This country is capable of doing it, and if this country were an autocracy and we could say to this man and that man, you go here and you go there, and to this manufacturer, you do this, there is no doubt but that we could employ every man in this country at good and fair wages and see to it that capital is properly compensated. Of course, one of the difficulties in the adjustment of labor conditions after the war is the peculiar mental condition of the workman. He, for example, might possibly want to go into an automobile factory. There might be one of a dozen other kinds of factories into which he should go. The difficulty will be to induce him to enter into the industry in which he is really needed; however, I don't know but that our Employment Service may be able to so control the situation that the men will be placed in the proper industries.

We do know that frequently it is very hard to get men onto farms, either for the planting of the crops or for the harvesting, and whether the Government may not be able to use its offices in that respect I am not prepared to say. I think that it can perhaps, by persuasive action, induce men to go into the really necessary industries, but of one thing I feel quite

sure and that is that, if this country is to succeed and we are to go through our readjustment properly, we should not have a period of depression after the war, and that period of depression I think will come if the policy is not carried out of seeing that the labor of the country is put into the really important industries accompanied by good wages. (Applause.)

The Chairman.—I think that Mr. Channing has covered the subject in a very broad way. I believe that one important thing is to get the average laboring man, so-called, to realize the necessity of the efficiency of labor; in other words, that in the long run he should only be paid what he earns. I have noted that one of the labor unions held a meeting and resolved that, in view of the prospective surplus of man power, a six-hour day instead of an eight-hour day should be adopted, thereby making more employment. But, of course, this idea could be carried to an absurdity and there would be no work for anyone if the cost of producing were more than what was received for the goods.

We have Professor Walker with us, and I will ask him to say something in regard to education in the immediate future.

Professor Walker.—Mr. Chairman and gentlemen: Just before the meeting the Chairman said he was going to call on me to say something and I told him that I had not prepared anything to say. After listening to the very deep problems and questions that have been brought up, I am still of the same opinion.

The subject now assigned me is a real surprise. Our educational institutions have been shot to pieces and there is not a semblance of our former practice left. Our universities in this city illustrate what has taken place all over the country. At Columbia, practically all of our students are men enlisted in the United States Army or the United States Navy and are doing military work, training, etc. It is a regular military training camp, hence the amount of time for study is greatly reduced. It is going to be a problem to bring our educational institutions back to where they were, and this problem may be difficult to solve.

While Mr. Sharpless was reading Mr. Finlay's letter two thoughts occurred to me. One was in regard to what we might call the American habit of bragging. I was talking with an officer at lunch to-day, who, on account of his position, had been on practically every front except in the Far East. He said: "There is one thing which we Americans will have to remember, and that is to avoid assuming an air of superiority if we

wish to be understood and respected by our Allies. This is something every man is instructed in before he lands in France or England."

We have a very great country, with wonderful natural resources, but we have not shown ourselves to be superior to the working forces in France and Great Britain, and we must remember that our part in this war has been comparatively small and our profits at the beginning large. I hope that we will not do anything that will antagonize our Allies in France or England or elsewhere with any thought of our superiority.

The other thing that occurred to me was his remarks in regard to potash. I do not agree with the statement that it may be unwise for us to manufacture this product if we can buy it from Germany cheaper. I believe that industries in which we have made a good start, such as dye making and potash, should, if necessary, be protected so that we can make ourselves independent, even if we do so at a higher cost.

The remarks that Mr. Channing made in regard to labor were excellent. It is going to be very difficult to radically reduce the rate that is being paid to labor. The cost of food is not going to decrease rapidly and as long as the price of food remains high the price of labor will also be high.

I think that our Chairman struck the keynote of this question, and that is labor efficiency. It has been terribly discouraging to see the way some of our laborers have conducted themselves, and as a result the efficiency of labor has materially decreased in this country. Large manufacturers can prove by their books that the production per man per day is on the average only a little over two-thirds of what it was in normal times. Now, that is the serious question in regard to labor in my mind.

I happened to be in a plant in Canada last summer. The wages were very high, but at the same time the production per man was excellent. The result was that, the men were paid so high, there was a waiting list at the labor gate and the efficiency was so good the plant made money. I think it is very largely a question of efficiency and if we could only make labor unions realize this, we would make a very great step in the solution of the labor problem.

I have not talked about what was assigned to me. I would like to say a great deal on that subject, but I hardly think that I am prepared. Probably Professor Peele might say a few words on the question of education. He has had a very much longer experience in that line than I have had, and I resign in his favor.

The Chairman.—We should be very glad to hear from Professor Peele on the subject of education. It is rather interesting to note, from what Professor Walker has said, that education has practically come to a standstill in the colleges of this country, for it was not very long ago that we were informed of the Government's plan to educate nearly all of the soldiers who were abroad in order to advance them at least one step further in their education, and thus prepare them for work of higher grade than that which they were doing before entering the army. Professor Peele, will you talk to us?

Professor Peele.—Mr. Chairman and gentlemen: It is hardly true that no education is going on in the colleges, but it is carried on along very different lines from those existing before the war. I will speak more particularly of Columbia.

When we got back from the summer vacation in September of this year we found an order had just come from Washington making Columbia one of the schools for the Students' Army Training Corps and putting it under a colonel of the regular Army. Our first task was to frame a new schedule of study, whereby a large body of young men who were to be sent immediately to Columbia would find things in readiness for what the Government had specified; namely, the establishment of a 48 weeks' course, consisting of four quarters of 12 weeks each. In doing this, the work in the engineering schools, normally covered in three years, each of two terms of approximately 14 weeks, had to be condensed into four quarters of 12 weeks each. It was obviously impossible to include all that is ordinarily given in three years and, as a necessary compromise, the first years' work of the engineering schools was left almost intact, with the omission of two or three of the less important subjects. Thus, the work of 28 ordinary term weeks of the first year was compressed into two quarters of 12 weeks, making a relatively small reduction. But in the remaining two quarters of the year, we had to include what were judged to be the most essential subjects of the second and third years of regular work; in other words, to compress four terms of 14 weeks into two quarters of 12 weeks. In this period the attempt is made to give the S. A. T. C. men a course that will be of use, first, in preparing them all for their subsequent military camp work; and, second, to sort out the abler men to be assigned to officers' camps, leaving the others ultimately to go to the soldiers' training camps.

What is to be done now, since the war is practically ended, I suppose must await a decision from Washington. I under-

stood to-day that the University authorities had been informed that we are on waiting orders.

If the Army and Navy Departments were to remove immediately all of the students of the training corps from the colleges and engineering schools of the country, these institutions would be left almost without any student personnel, because those who would have entered the regular courses in the absence of the war either went at once into army or navy service, or, since they matriculated this fall, have been inducted into the S. A. T. C. At Columbia, we, of course, have some alien students, from China, Japan, the Philippines and elsewhere; but, aside from these, the undergraduates of the whole University are in training for war. If the present schedule were continued, the interesting situation would be reached by October 1, 1919, that we should have graduated all the students in the three classes, leaving none for the following year. How that difficulty would be overcome, I have no idea, we might have had to take a leave of absence and simply counted one year out. At any rate, if the war continued, we should probably have had to face a condition having only alien and "exempt" students for the year beginning next October.

The course of study prescribed in the schedule for the S. A. T. C. students is technical only to a limited extent. The Government requested that it should be worked out so that the young men should get as thorough a training as possible in elementary mathematics, chemistry, physics and English, and be carried on afterward as far as feasible in applied mathematics. Many of the more technical courses in all the engineering branches had to be omitted in fulfilling the conditions specified and in bringing about so great a concentration of work.

I am in full accord with the remark made by Professor Walker, that the time demanded for purely military training and for patrol work, etc., at the University, has cut into the efficiency of the students to a considerable degree. It was not to be expected, even in the best of circumstances, that in so short a course the students could get very much in the way of a technical education; but, were it not for the war, many of these young men unquestionably would never have seen the inside of a technical school. They have already received much of value and, if the war had continued and the course had been followed up as planned, they would have gotten a start in engineering and would have been better prepared to enter the different branches of engineering industry than would otherwise have been the case. (Applause.)

The Chairman.—Among the letters that we have received in response to our request for suggestions there is one from Mr. Stone, who is now in Washington with the War Industries Board. I will ask Mr. Sharpless to read it.

The Secretary.—Mr. Stone was unable to be here and sent this letter in response to a request for suggestions as to what subjects might be taken up.

The main problems confronting us at the conclusion of the war appear to me to be:

Labor.

Relations of the Industries to the Government.

Readjusting output to normal conditions.

Co-operation.

Men returning from the front.

Disposal of material bought by, or contracted for, by the Government.

Labor.—If we are to hold our own in the markets of the world, labor rates must be materially reduced. Even if we are merely to hold the domestic market they must be reduced or heavy tariff protection obtained; the latter is not probable. I do not think that anyone believes that labor will ever get back to pre-war rates, and it is not desirable that it should. Any attempt to reduce rates will be very strongly resisted and, in my opinion, a reduction can only be brought about by educating the workmen in economics. Get them to appreciate that it is not the amount received, but its purchasing power in excess of necessities that helps them. And that high labor rates and inefficient labor raise the costs of both necessities and luxuries. I believe that the M. M. S. A. should devote a large part of its discussion to the ascertainment of the best means of educating the men along these and similar lines.

Relations to the Government.—During the war, the Government has necessarily done much more to regulate all of the producing and distributing activities of the country than ever before. It would, I think, be well for the Society to consider carefully the effect of such regulation and make recommendations as to how much, if any, of it should be continued.

Many of the boards that are at present controlling activities expire automatically on the conclusion of peace. It is both probable and desirable that some at least will operate for a time after this. In ordinary times it would be impossible for the Government to get as many men of as high ability to undertake such work, and the opinion of the Society should have considerable weight with the authorities in determining what should be done.

Readjusting Output.—In many lines, notably in the production of metals, the output has been very largely increased to meet the war needs and now greatly exceeds the normal requirements. In others, which have been considered as of a non-essential character, the output has been largely curtailed, either because the raw materials they used were needed for war purposes or from shortage of labor, or both. The second class should have little trouble in readjusting itself as its troubles will end as raw materials are released and labor becomes more plenty.

The Society can, I believe, well devote considerable time to a study of the problems of the first class. Shall the ordinary laws of Supply and

Demand, and of the Survival of the Fittest, be allowed to operate to their logical conclusion or should a concerted effort be made to find new uses and outlets for these products in order to prevent the loss of enormous investments in plant. If an effort is to be made to save this investment what form should it take, and how can it be made most effective.

The government has built many plants either on its own account or through money advanced to manufacturers. What is to become of these? Should they be: (a) scrapped; (b) operated by the government for its own account; (c) sold? If sold it will probably be for much less than cost which will give the purchasers an immense advantage over others who have paid full prices for their plants.

In many lines notably explosives, sulphuric acid, nitric acid and a number of organic compounds this is a very serious matter.

Co-operation.—The law has brought about a great deal of associated action in many lines with very beneficial effect. It is possible that our "Trust Laws" would permit much of this to continue, but it is likely that these laws will be modified as the result of the experience of the last two years. Even if the law remains unchanged much good can be done by associations limited to a single line of business. By a single line, I do not mean only those making the same product, an association of miners, for instance, could do much to assist each other regardless of whether all were mining the same kind of ore. This, of course, refers to non-technical questions only as the latter are already taken care of by the national engineering societies. The M. M. S. A. might well discuss the possible plan and scope of such organizations. The Iron and Steel Institute has been a very useful agency of this kind for some years. The Zinc Institute has been recently organized to do similar work and the general impression is that it will be of much value.

The question of exports might well be taken up by such an organization. I believe the laws now allow of this. If all exports of a given raw material could be sold, allocated and handled, by a single agency it would not only save much expense and duplication of work but should insure better prices. It is very doubtful whether similar action could be taken in the case of finished products.

Men From the Front.—The Army experience is certain to have a profound effect on the men who have gone abroad and even on those who have merely received training at home. Men who have led an active outdoor life in which they were doing things will be at least reluctant to go back to office work of the usual routine type. Few of them are fitted for, or will desire, to undertake farming, and the mines and mills of the country will have an unparalleled opportunity to obtain men who are physically fit, well disciplined and, in many cases, accustomed to command. Are the industries in a position to take advantage of this opportunity and if not how can they best and most quickly qualify themselves? These men will be ideal raw material but in most cases will be without technical training. How can they be taught what is necessary without losing the effect of their military experience?

The men who have been partially disabled should also be provided for. In Australia many of the works are keeping themselves short handed in their technical staffs for the purpose of holding open positions for the men from the front, particularly for those who have been partially disabled. At one works, I met two men in charge of departments each of whom had lost an arm in France. Some concerted effort should be made to insure that those who have suffered injury should be well and quickly taken care of.

Materials Owned by the Government.—Immense amounts of material of all kinds have been bought or contracted for by the government which will not be needed. How can these best be handled? If the government immediately cancels contracts it will, in many cases, be a severe hardship for the contractors. If it takes the materials, its possession of large stocks, particularly of raw materials, will be a menace to the markets until they are finally used or sold. How should these unfilled contracts be handled? The stocks of many materials that have already been delivered and paid for also raise a serious question. Some the government can keep and gradually use as they are things used in peace as well as in war, others are only useful in war. What should be done with these?

If we have universal military training, as we should, much more of this material can be used than if we go back to the old order.

(NOTE: Apropos of what Mr. Stone has to say with reference to war plants under the head of "Readjusting Output to Normal Conditions," a communication has been received by the Secretary from a mechanical engineer which particularly emphasizes the need of some control over the "demobilization" of plant equipment. An excerpt from this letter is printed as an addendum to the proceedings of the New York Section meeting.)

I should like now to make this suggestion: That we ask the members, who are here, after having heard the discussion which has taken place, whether or not they have any definite ideas to offer to the Executive Committee of the Section, or to the Society through the Executive Committee, so as to crystallize our thoughts and to get us working along definite lines. Might it not be well for the meeting to offer something in the form of resolutions?

We have several other letters from members on the questions that should be given consideration, all of which will be printed in the next BULLETIN, but as the hour is late, I think that we ought to take this opportunity to receive suggestions from the members present.

The Chairman.—As the Secretary states, the hour is rather late! We would be very glad to hear from any other member in regard to the proposal made by Mr. Sharpless, or to receive suggestions on the general subject of reconstruction.

There is one gentleman that we would like to hear from in regard to the question of foreign investments, especially those in mining, in relation to the probable conditions abroad as well as here. Mr. Ball, will you talk to us?

Mr. Ball.—Mr. Chairman, I don't think I am at all as capable of talking on that subject as a good many men present who have been out of our country much more than I. One of the things which we ought to consider at this time is the duty of the American mining engineer to broaden out his work and to include, less exclusively at least, the North American continent as his only field.

The American mining engineer to my mind at least, compared to our French confrères and to the British mining engineers, has been distinctly provincial and I hold that relatively few realize what opportunities there are for the practice of our profession outside of the United States. Now, I do not say that for our benefit because I think that, with the increase in our merchant marine, one of our patriotic duties is to see what mineral products can be brought to this country and what mineral freight can be given the merchant marine to carry away from our country.

I think further that few of us realize how the banking facilities throughout the world, particularly the banking facilities of our own larger banks, have been increased. Further, we ought to be better informed and, for the protection of our clients, we ought to know more definitely than most of us do what stand is to be taken by the various governments as to the position of American capital in foreign countries. I know that there has been a rather decided movement, at least in certain countries, to admit, or rather to father greatly, their own capital as opposed to American capital or capital from other countries. I feel that the Society should, as far as possible, mold public opinion as to what protection American capital is to have in the future in foreign countries. A hundred and ten years ago in the Mediterranean, the Navy saw that American capital was protected in every way and I think perhaps in Mexico in more recent years it may be admitted that American interests haven't been so well protected. The Society is in a position to express to a considerable extent public opinion as it refers to this one branch of the investment of American capital in foreign mining ventures.

The Chairman.—The force of Mr. Ball's remarks is very evident to all of us. The importance of having an outlet for our surplus capital abroad and of providing an outlet also for surplus material produced is going to be very real in the future.

Is there any other gentleman that would like to say anything on this matter? I am sure that you all have ideas and if you will only give them to us, it will be very much appreciated. Captain Dulieux, will you say something with regard to the French point of view? (Prolonged applause.)

Captain Dulieux.—I do not take this applause for myself but for France. (Applause.) Speaking of the investment of American capital in foreign mining enterprises, although we French have been mining men, we have developed the mines

only in France and not in the territories which are in French possession on the scale with which we ought to have and thus men such as Mr. Ball would certainly be welcomed by the French engineer and also by the French Government. It isn't only capital from America that we should like to see go to France, but we would like also to see some metallurgists and engineers. There is a field for which we want great experts, such as came to us more or less, before the war, from England and from Germany.

We have been behind in that field. The flotation process, familiar to you, is quite unfamiliar to our French engineers. Even the treatment of copper ores, or lead ores, has not been developed in France, or in our colonies, as it has been developed in this country. Practically all of the north of Africa is French—that part which is north of the desert; Tunisia, Algeria, Morocco. You know that Morocco has about the same geological formation as Spain, and that Spain has been for centuries a rich country for fuel as well as for lead and copper. But, northern Africa is not developed.

Another country which has not been developed is Abyssinia. It was a rich mining country in the Grecian and Phoenician times, but since the Byzantine Empire it has been neglected, for even in recent times, owing to Turkish misgovernment, this country has not been developed. Now, it happens that in Syria and Abyssinia, there has been formed more or less a Franco-British protectorate, and we hope that in a few years something will be done with these colonies. The organization that will carry on this work will start from London or Paris; if it does start from Paris I think that we would like your assistance very much, not only in capital but also that of your metallurgists and your young engineers.

Professor Walker has spoken of existing educational conditions here, but consider what they are to-day in France. A good many students in the mining schools had to leave after one year, and some who were only preparing to enter these schools received no technical training at all. We are now therefore in need of your engineers. In the steel and coal industries I think that we can do for ourselves, even in Lorraine, which now belongs to us, and where our organization will take the place of the Germans. But, for the flotation of copper, gold and silver in the Mediterranean basin, your engineers and your capital will be most welcome. (Applause.)

The Chairman.—To show the difference in trend of thought and change of attitude of the engineer to-day. When I was

in Colorado at the Institute meeting, I had the pleasure of meeting Captain Benet, a mining engineer, who had been in Tunis, and he stated that, before the war, it hurt him to kill an insect, but that now, when instructing the students at Fort Sill, every time he fired a gun, because he wasn't aiming at a Boche he felt the waste very keenly.

Mr. Sharpless, can you tell us something of the Government's plans relative to reconstruction?

The Secretary.—I cannot tell you anything about the plans of the Government further than to call the meeting's attention to a very interesting pamphlet published by the Department of Commerce on economic reconstruction. In this connection, I have prepared a paper in which I point out the salient features of this pamphlet and which I shall be glad to read:

In giving consideration to the work that lies before the Society, it is well to view in a general way first the work that lies before the world in order that we may select, for our special attention, those subjects where our knowledge and skill may be most successfully exercised.

The subject appears in some form now in almost every issue of the daily press and periodicals, but no orderly discussion of the American viewpoint appears to have yet been attempted, perhaps because of the largeness of the task and the inability of anyone to grasp, intelligently, more than a few of its features.

In order to help us, the Bureau of Foreign and Domestic Commerce has issued "An Analysis of the Main Tendencies in the Principal Belligerent Countries of Europe" respecting "Economic Reconstruction" and I think it might be useful to state here briefly what these tendencies are, especially those tendencies that are of particular interest to us.

Much data has been collected by various departments of the Government, committees have been formed, but so far I believe there has been no such authoritative body convened in the United States as the Paris Economic Conference and the British Committee on Commercial and Industrial Policy after the war. Germany, Austria and all of the Allies have been formulating their ideas for the resumption of peaceful economic life, with some national supervision of the use of national resources, but the two bodies mentioned studied the subject with particular care and at the time they made their reports probably represented the best thought among the Allies. Their plans deal chiefly with the best interests of the nation formulating them, but whatever they may be they are of vital interest to the United States and she must know and make plain her interest in them.

Every nation is anxious to recover its former industrial, commercial and financial position and each will make strenuous efforts to do this. But it will be for us who have been hurt the least to push forward the idea of community of interest and strive for agreements in conformity with our ideas on entering the war.

We have now some laws on our statute books that will facilitate our occupation of a new position in relation to foreign commerce, but others will be required and some must be repealed or modified.

It is admittedly a tangle with which the Allies have to deal, for not only has each its own interest and that of its friends to consider, but these must be dovetailed with what is best for the enemy states, states now having

no government capable of constructive legislation or capable of enforcing commercial treaties.

One subject upon which all of the Allies appear to agree is that during the period of reconstruction it will be necessary for the various governments to control or to participate in trade and industry to some extent in order to prevent sudden transition toward normal existence. There is no agreement upon the extent of time limit of this control, one year, five years, or permanently being suggested for various types of business.

The matter of Governmental control is intimately connected with two other ideas; first, economic independence as a political necessity and, second, national control of important raw materials. These are two points that are of especial interest to mining engineers.

The Paris Conference of June 14, 1917, proposed an economic alliance for after-the-war period, as well as a political alliance against their former enemies. At the time it was proposed it was objected to by some French and English economists. But the entrance of the United States into the war, more recent developments and more mature consideration have caused this idea to be almost forgotten.

New commercial departments will probably be arranged for in each of the foreign countries of trading importance, the Ministry of Reconstruction in Great Britain with its functions has already been suggested by the British committee.

What Germany will do or may wish to do is, of course, now uncertain, but knowing to what extent the state controlled commercial interests before the war and with what success, we can expect that her people will have some very decided views upon that subject when it approaches the reconstruction period. A year ago the German government had completed its plans for controlling almost every branch of trade, but commercial interests did not support this by any means and it is probable that the plans of the Allies and of the United States will now be accepted without friction.

In Great Britain, the labor party is calling for large governmental control, which is to include the railways and mines, while the London Chamber of Commerce warns the Government against "perpetuating after the war the methods of expediency which may have been justified during the war." Government monopolies as a means of raising revenues are equally praised by the labor party and condemned by commercial interests. The tendency of the British government is illustrated by its agreement with Australia for the control of the zinc output of that country for the period of the war and ten years thereafter, and by the Non-Ferrous Metal Act giving the Board of Trade control of these metals and ores.

I quote a few important paragraphs from the report of the Committee on Commercial and Industrial Policy after the War, recently made public and probably showing quite well the present tendency of thought in Great Britain.

"The main object of the report is to lay down the general lines of policy upon which permanent provision should be made, in the light of the experience of the war, for the safeguarding and promotion of British industry and commerce in the future."

"any attempt to make the British Empire self-supporting in regard to all the raw materials for which it depends on foreign countries would be neither practicable nor economically sound, and it is recommended that a selective policy be adopted, which shall have regard to the relative importance, industrial or military, of such raw materials, and to the source of supply and the likelihood of their disturbance in time of war."

"it will be necessary to continue for some period after the war some portion of the control of home and foreign trade imposed during the war in order particularly to secure to the country adequate supplies of foodstuffs and raw materials for industry and their distribution. But we recommend that the restrictive measures which it may be necessary to continue be kept within the narrowest possible limits, and, wherever practicable, the trades concerned should be intrusted with the working of the control under Government authority. The policy of the Government should be directed toward the restoration of normal industrial conditions within the shortest possible time. We are strongly of opinion that State control of, and restrictions upon industry arising out of war conditions will be found to be detrimental under normal conditions and should be removed as soon as possible after the conclusion of peace, due regard being had to the circumstances of each particular case."

"It seems to us to be certain that in the future industries of the nature dealt with in this report will require special and separate consideration, and that no general measure will be sufficient to meet the varying requirements. Consequently, it is impossible to lay down permanent and uniform lines of State action in this connection."

"Under the circumstance the committee confines itself to the recommendation of the establishment of a special permanent board, to be associated with whatever department of State is intrusted with the care of the commercial and manufacturing interests of the country. The function of the board would be to watch the course of industrial development and to work out from time to time, when necessary, detailed schemes for the promotion and assistance of industries concerned with the production of the special commodities indicated in the report."

"toward combination in regard to production and distribution, the committee, expresses its opinion that in some important directions the individualistic methods hitherto in force should be supplemented or entirely replaced by co-operation and co-ordination in regard to securing supplies of material, production, and marketing. Associations for general trade purposes are also regarded as very desirable for all important industries, and the opinion is expressed that the Government should give every encouragement to the combination of manufacturers for the purpose of securing supplies of raw materials."

"The final conclusions in regard to fiscal policy are stated by the committee as follows:

1. The producers of this country are entitled to require from the Government that they should be protected in their home market against "dumping," as we have previously defined it, and against the introduction of "sweated goods," by which term we understand goods produced by labor which is not paid at trade-union rates of wages where such rates exist in the country of origin of the goods, or the current rates of that country where there are no trade-union rates.

2. These industries which we have already described as "key" or "pivotal" should be maintained in this country at all hazards and at any expense. No ordinary economic rules apply to the situation of these minor but important industries. They must be kept alive either by loans, by subsidy, by tariff, by Government contracts, or in the last event by Government manufacture. They will necessarily be subject to Government supervision.

3. As regards other industries, protection by means of customs duties or Government assistance in other forms should be afforded only to carefully selected branches of production, which must be maintained either for

reasons of national safety or on the general ground that it is undesirable that any industry of real importance to our economic strength or well-being should be allowed to be weakened by foreign competition or brought to any serious extent in this or other ways under alien domination or control.

'4. Preferential treatment should be accorded to the British overseas dominions and possessions in respect of any customs duties now or hereafter to be imposed in the United Kingdom.

'5. As regards our commercial relations with our present allies and with neutrals, the denunciation of existing commercial treaties for the purpose of affording special treatment to such of our allies or of the neutrals as might be disposed to make reciprocal concessions is unnecessary and inexpedient.' "

If, as indicated, British policy has crystallized itself no further than this, it is quite possible that the United States may yet guide the policies of herself and Allies in a direction that will cause the least friction and that may stimulate the growth of business and production both in Ally and enemy countries. I include enemy intentionally. Those countries will have a heavy debt to pay, we are anxious to see them pay it and we must assist in making it possible for them to settle their obligations with about the only thing they have left—labor. There will be required from our enemies a tremendous payment for the damage they have done; to make this payment possible we must provide them with three things, food, profitable employment and HOPE.

The Chairman.—Gentlemen, is there any further discussion?

Mr. Graton.—Mr. Chairman, I remember how a year and a half ago and since we have all decried the duplication of effort. As engineers we feel that we have avoided some of that criticism. I wonder if we ought not to look at this matter of readjustment in the light of the rather unfortunate experience which we have passed through. We are going, perhaps, to have a little more time to get under way in readjustment than we had in getting into war, therefore the opportunity to avoid duplication, to work a little more to the point, and considerably more effectively, is all the greater.

It surely is a fine idea for this Society to put its shoulder to this wheel, but it seems to me that if we do not endeavor to find out pretty well at the outset what other organizations and the Government bureaus are aiming at, efforts that we ourselves may make are going to be more or less wasted—they will come to little, they will duplicate in some way, they will be inefficient. I don't know whether such an idea strikes a responsive chord or not. If it does, it has occurred to me that perhaps the Executive Committee, or some specially appointed committee, not too large, might be empowered to canvass the situation within the narrow limits of the mining industry, but once within those narrow limits then broadly for the mining industry, to ascertain what most needs to be done, what others are doing and what we ourselves best can do.

This particular idea has come to me because, as many know, work that, even though not primarily aimed at readjustment, may nevertheless be added to the total of reconstruction effort, has been going on in Washington, and perhaps outside of Washington, pretty much since April, 1917. Personally, I do not know how much, but a good deal at any rate has been done in the matter of metal resources and mineral resources, especially in foreign countries. There is a large staff working under the House Commission, there is a large staff working under, or at least in close co-operation with, the State Department, there is another considerable staff in the Bureau of Mines and there is another one in the Geological Survey. To some extent, they are co-operating, and are co-ordinated, although not perhaps as closely as they ought to be. Unless we know something of what is being done in Washington, we are pretty sure to lose effort. (Applause.)

The Chairman.—I think what Mr. Graton has said is most important. I understand that the Council of the Society has taken this matter up and is investigating it for the purpose that Mr. Graton has suggested. I know of an instance in connection with one of the large explosive plants. It had ordered a car-load of machinery and a month or two afterwards wrote the manufacturers to say that some essential machines had been omitted. The plant was sure that these machines had not been included because the car arrived with the seals unbroken. The manufacturers made an investigation and found that the machines reported as missing had been in operation in the plant for two months. Are there any further suggestions to be made?

Professor Lewis.—I should like to suggest that we empower or request our Executive Committee to bring to the next meeting such recommendations as it may decide upon after having considered everything that has come to its hands, and to suggest as definitely as possible a program for our winter meetings. That is, something around which we may crystallize our thoughts and which may serve as a starting point.

The Chairman.—That would really be a function of the Executive Committee—namely to prepare a program for the coming year—and I presume that it will follow the plan which you have suggested.

Mr. Ingalls.—I wish to say that at a recent meeting of the Council this matter of program was discussed and that the Executive Committee was authorized to lay out a program

through the appointment of committees to study such questions as might be deemed wise, and it was the intention that such committees would make reports that should be laid not only before this Section, but also before the Society as a whole. Now, what the Executive Committee and the Council would like above everything else is to have from the membership suggestions as to broad questions or things that might properly be studied or investigated by the Society in this way.

The Chairman.—That seems to cover the matter. Is there any further discussion?

Mr. Huntoon.—Mr. Chairman, in connection with Professor Graton's reference to Government activities, I desire to say that the Secretary's office has been in very close touch with both the Bureau of Mines and the Geological Survey. Now, the ballot for the election of officers will be mailed on, or before, the 14th and with that ballot a questionnaire will be sent requesting the members to advise the Secretary's office of any information—not in detail—but any general information which they may have regarding foreign mineral deposits. Thus, if an engineer has examined deposits in Russia he should simply state that fact, although indicating what deposit, or at least what district has been covered. This information is for Government use and if the Government wants it in detail it will then ask for it.

The Chairman.—Are we to hear from any other members?

Mr. Corning.—Mr. Chairman, Mr. Channing spoke of the wages of the workingman. There is another point and that is the effect of the influenza on labor. It came to my notice through a friend who operates some very large plants. He employed 14,000 men, but was very much hampered in his Government work because of the men who were laid up. He also told me that, a day or two before I saw him, he had received a call from a physician, who stated that he had treated one hundred and fifty cases of influenza without the loss of a single case. The remedy is a very simple one, it is a very old one, made much more useful by a combination which avoids certain results.

This physician came to my friend because he could not obtain a hearing in Washington; my friend wrote Mr. Baruch, and the physician received a telegram asking him to come down to Washington. That was about a month ago. Since then this gentleman has carried on his work with great success. Only the other day I was talking with Mr. Mathewson and he said

that they had been much annoyed by this same epidemic in Perth Amboy. His physician secured some of this remedy and insofar as I have heard, although the epidemic was well on the way, the results have been quite good.

We have had this epidemic, and I think a very large proportion of our people think that it is a matter which has come and has gone. Two or three days ago I received some letters from Switzerland. One was from a banker, who wrote me that three-fifths of the men called to the colors in Switzerland had been attacked with influenza. He also stated that in the valleys, where the houses lacked ventilation, 10 per cent. of the population had died. Another letter told me that the epidemic, which prevailed last spring and had passed away, had returned and that there were 4,500 cases per week in a town of possibly 100,000 population.

Now, if we have a repetition of this epidemic, as it is now in progress in Switzerland, it is going to be a very serious matter, especially if work is stopped, and it occurs to me that it would be a very good idea to consider the question and if possible take steps beforehand so that if the epidemic does recur, ample provision could be made to look for the causes and minimize the results. Whether it would be worth the Society's while to take the matter up, I do not know, but it seems to me wise to lay it before you.

If it is worth considering, I would be very glad to make arrangements for one or two of these physicians who have had practical experience with this remedy to address a meeting of the Section. (Applause.)

The Chairman.—I believe that is a matter of very great interest to the members of the Section and I believe that the new chairman will be glad to give it consideration. Is there anything else to come before us to-night?

The meeting adjourned at 10:15 P. M.

F. F. SHARPLESS,
Section Secretary.

Addenda.—In response to the request of the Executive Committee of the New York Section for suggestions as to what special subjects should receive attention under the general program on "Reconstruction," certain communications have come to hand which, due to lack of time, were not presented at the meeting, but which nevertheless should not be entirely omitted.

The Secretary of the Society, Louis D. Huntton, has the following suggestions to offer:

WAGES:—Wages have been increased due to the war and there must be a readjustment following the war. I think this is one of the most serious questions which we will have to face. In the past, various methods have been adopted by different companies to adjust wages whereby the wage-earner's income is based upon profits or upon the market price of metals.

The United States Steel, International Nickel, and other corporations, have made it possible for their employes to purchase stock on credit, to be paid for monthly from their wages. It is not compulsory, and I understand that only the better men in the employ of these companies have availed themselves of this opportunity. In a similar way the large mining companies have in some cases based wages paid on the metal price received.

Still another method, of which I have recently heard, is that adopted by the Consolidated Gas Company. This consists of a profit sharing agreement, with a committee consisting of employes and representatives of the company in charge. I understand that this system provides first, a stock dividend of 10 per cent. of the net income, and that then the balance of the net income is divided 50/50—half to the wage-earners and half to the stockholders.

Also, the American Tobacco Co., has introduced a system whereby the wage-earner receives a bonus.

This subject, I consider very important indeed and I think it will be found that at least two evenings may be devoted to its discussion, and it may be further advisable to urge the San Francisco Section to have similar discussions at the same time.

SHIPPING:—One or two evenings might be given to the subject of the use of the ship-tonnage now being built in this country, and that in this connection, consideration might be given to overseas transportation such as is carried on by the large exporting corporations who own and operate ships.

DISABLED ENGINEERS:—All mining and engineering companies must face, on the termination of the war, the return of their old employes, both those who have been more or less disabled and those who are in good physical condition. A discussion of this subject might resolve itself into the appointment of a committee of the Mining and Metallurgical Society to assist in securing positions for such men.

In a letter to Mr. Knox, under date of October 31, R. M. Raymond proposes that the Section should give consideration to the subjects enumerated below:

1. Valuation of mines based on some proper method which can be adopted by engineers and by the Government.
2. Relation of mining business, and excess profit tax on mining operations, as compared with industrial operations; with a difference or differentiation made in the laws regarding same.
3. Possibility of some help or improvement to gold mining conditions, to encourage and increase the output of gold.
4. Efficiency of labor at the present time, and improvement of operations, to make labor more efficient, productive, and profitable, both to companies and to the workmen themselves; also arrangement and regulation of returning men in order to minimize labor turn-over.

Some little time ago, in an interview with the Secretary, Mr. Wm. F. Burditt, Jr., pointed out in such a clear manner what the probable after-war condition of the machinery market would be, that he was requested to put his views in writing. As this inquiry is one phase of reconstruction, and also because it is particularly pertinent to a certain suggestion advanced by Mr. Stone in his paper, read at the Section meeting, a letter from Mr. Burditt is here included. Mr. Burditt is a mechanical engineer who has specialized in machinery for the production of sheet metal and plate.

I have become disturbed over the predictions that a severe panic condition is going to obtain in the machine tool market. Users of machinery have protestingly accepted the price advances, only buying as they felt forced to, and are looking for heavy reductions. Every large commercial center will give birth to new industries which will remain dormant till these reductions take place. Machine tool dealers are accepting it as a foregone conclusion, and have reduced their holdings of stock machines below any previous record. The army of so-called "War baby" concerns dealing in second hand tools will meet the situation by fair means or foul, so as to save themselves from extinction or so as to make a final clean up on which to retire.

I know of one case in which a manufacturer of automatic wrapping machines, temporarily set aside his peace business, purchased an equipment of machinery suitable for fabricating armor plate for gun shields, etc., and who now expects to dump this machinery on the market at a sacrifice of 75% to 80%, and then hopes to find the market full of bargains from which to secure machinery for the enlargement of his original industry of making wrapping machines. The bargain tools which he plans to buy will have been those unloaded by some other concern that had secured them for another class of war-work, and which may be going back also to a peace industry whose production requires machinery of the kind discarded by the wrapping machine company.

The wrapping machine company has without warrant concluded in advance that the market is to be flooded with the same type of war-work tools as it is disposing of and will fall a ready and easy prey to some crafty profiteering second-hand machinery dealer; this same foregone conclusion has been reached by nearly all manufacturers who have been engaged in producing special lines of war-work.

I would suggest in the first place that a general letter of warning should be issued from Washington, informing all those who were engaged in war production that, what to them is looked upon as special equipment, fit only to be junked, may be standard equipment in demand by some peace industry, etc., etc. The legitimate machinery dealer should not object to such a move on the part of the Government.

I would furthermore suggest that a centralized bureau of information be established to be in charge of a man competent to make a careful study of the records, on file with the official war boards, of manufacturers engaged on war contracts and of the type of machine tool equipment installed by each. This bureau to operate under a pre-arranged plan of co-operation with established and reputable machine tool dealers. The purpose of this bureau being to inform dealers and users alike as to the probable demand for each and every class of machinery, both in home and foreign markets, and to issue and distribute broadcast lists of manufacturers which have equipment to offer, with a description of this equipment.

COUNCIL.

Meeting of November 4, 1918.

A meeting of the Council of the Mining and Metallurgical Society was held, at the call of the President, at the Lawyers' Club, New York, on Monday, November 4, 1918, at 1:20 p. m. Mr. Ingalls, the President, presided, and the other Councillors present were: Messrs. Channing, Dorr, Finlay, Huntoon, Kirby, Penrose and Sharpless. The Assistant Secretary also attended.

The chair, having declared a quorum present, and the minutes of the previous meeting, held July 9, having been approved as submitted to the individual Councillors, announced that the first business before the meeting was to receive the report of the Gold Medal Committee. As the "Rules" called for no action by Council at this time, the Secretary was requested to prepare a ballot, carrying the names of the two candidates recommended, for a vote of the entire Council.

Election Tellers.—The President, at the request of the Secretary, appointed R. T. Cornell and F. T. Rubidge tellers to count the ballots at the annual election.

Geographical Distribution.—The Secretary's recommendation that the districting of the membership as adopted in 1917 should again prevail was approved. It was explained that the changes in geographical distribution had been but slight during the past year.

Paper Conservation.—Correspondence with C. R. Corning with reference to a notice on the conservation of paper, appearing in BULLETIN 124, was then brought to the attention of Council. Writing on October 23, Mr. Corning calls attention to the waste of paper in governmental departments and suggests that the M. and M. Society, through its Council, should take some action. In this connection, the Secretary presented a letter received also from the Lake Superior Mining Institute approving the course of the Society in giving this matter publicity.

After some little discussion, Mr. Sharpless, in explaining the program of "Reconstruction" in contemplation for the meetings of the New York Section during the coming season, stated that a campaign for the conservation of paper was a closely related subject, and thereupon moved, "that the correspondence with Mr. Corning should be referred to the Secretary of the New York Section." The motion was unanimously carried.

Nominations for Officers and Councillors.—The next business before the meeting was the consideration of the Secretary's

report on the nominations received from the members for officers and councillors. In presenting his report, the Secretary requested a ruling as to the proper interpretation of By-law 10 because of certain difficulties which had arisen. After some discussion, the chair announced his ruling, to which no exception was taken.

The Secretary then informed the meeting that Messrs. Drinker, Finlay and Stone had duly notified him that their names should not be considered for office in the event that they were nominated, and also that W. R. Ingalls had refused to again run for president.

For president, the Secretary then submitted the names of J. Parke Channing and H. H. Knox as those receiving the highest number of nominating votes. Mr. Channing declining to become a candidate, Mr. Knox became the sole nominee for president.

The Secretary then presented the name of Mr. Sharpless for vice-president with the explanation that all other names had been eliminated because less than seven votes had been cast for any one. Mr. Sharpless, thereupon, became the candidate for vice-president.

Only three votes having been cast for other candidates, Louis D. Huntoon was made the sole nominee for secretary.

For councillors in districts 1-2-3-4, one to be elected for a three-year term and one for one year, the Secretary submitted a list of 31 nominees, as follows:

W. H. Aldridge	J. H. Janeway	Robert Peele
S. H. Ball	Sidney J. Jennings	R. M. Raymond
J. Parke Channing	J. E. Johnson, Jr.	Allen H. Rogers
Walter Douglas	J. F. Kemp	Forest Rutherford
Edward L. Dufourcq	A. R. Ledoux	E. Gybbon Spilsbury
H. A. Guess	Thomas H. Leggett	Bradley Stoughton
H. W. Hardinge	W. Lindgren	J. H. Susmann
Fred Hellmann	R. L. Lloyd	G. D. Van Arsdale
W. L. Honnold	W. W. Mein	J. A. Van Mater
W. R. Ingalls	Frank L. Nason	Arthur L. Walker
	William Young Westervelt	

A discussion then arose as to the possibility of reducing the number of candidates, and the motion which follows was finally adopted:

That all nominees receiving three or more votes should receive a place on the ticket and that, at the election, the candidate receiving the highest number of votes should serve for three years and the one receiving the next highest, one year.

* The remainder of the Secretary's report presenting nominees for the Council for other districts was thereupon approved as submitted, and was as follows:

FOR DISTRICT 5	FOR DISTRICT 11	FOR DISTRICT 12
H. M. Chance	Ralph Arnold	Frederick Burbidge
R. A. F. Penrose, Jr.	S. W. Mudd	C. W. Goodale
J. E. Spurr		
Samuel A. Taylor		

The Secretary was then instructed to prepare and issue the election ballot as adopted.

Membership Statistics.—The Secretary then presented a statement showing the status of the membership on this date, as it appears below:

	July 9	Nov. 4
Membership, January 1, 1918.....	301	301
Members elected since January 1, 1918.....	22	22
	<hr/> 323	<hr/> 323
Members resigned	7	7
Members dropped	2	2
Members deceased	2	3
	<hr/> 312	<hr/> 311
Applications before Council	0	3
Applications before members	2	4
Applications before Executive Committee	0	2
Applications in office	1	0
	<hr/> 315	<hr/> 320

U. S. Geological Survey.—The Secretary reported that a request had been received from the "Survey" for information as to what members of the Society have knowledge of mineral reserves in foreign countries. It was further stated by the Secretary that much of this data is obtainable from the office records, but that he desired the necessary authority from Council to transmit this information to the "Survey." This received the ready approval of the meeting, but the suggestion was made by Mr. Sharpless that as recent data with regard to the foreign experience of the members was not available, they should be given an opportunity to supply them. A motion was thereupon passed, as follows:

That the Secretary be empowered to enclose a questionnaire with the election ballot, when issued, for the purpose of collecting up-to-date information as to member activities in foreign countries, and further that the Secretary be allowed to give to the U. S. Geological Survey any information of this character contained in the files of the Society.

U. S. Bureau of Mines.—Attention of the meeting was then called to the assistance which the Secretary's office was render-

ing to A. H. Fay of the "Bureau" in reviewing "A Glossary of the Mining and Mineral Industry" now in preparation. The Secretary stated that in addition to proofreading, suggestions as to omissions and the better definitions of words, had been requested.

War Committee of Technical Societies of Engineering Council.—The Secretary announced that since the last meeting no further report had been received directly from either of the representatives of the Society on this Committee. On the other hand, he had received copy of the minutes of a meeting of the W. C. T. S., held on September 11. These had been summarized in the September BULLETIN.

It was further stated that the Committee is now in closer relationship with the War Department and has a Washington office, which places it in direct touch with the Inventions Section of the General Staff; that Bulletins Nos. 2 and 3, devoted respectively to "The Enemy Submarine" and "Problems of Airplane Improvement" issued by the W. C. T. S., had been forwarded to the members of the Society during the summer; and that problem memoranda, quite recently released by the W. C. T. S. on behalf of the Inventions Section, had been sent out in the form of mimeographed sheets with the request that publicity be given, and were to appear in the October BULLETIN now in the press.

American Engineering Service of Engineering Council.—The Secretary then submitted a sketch report on the A. E. S. and reminded the Councillors present that the Society was represented on this "Service" by the Assistant Secretary, but that although the BULLETIN had kept the membership in touch with its activities, no formal statement of the work accomplished by it had been made to the Council. The report follows:

From its creation in June of 1917 until January, 1918, the A. E. S. was under a handicap due to the lack of funds, but, by adopting in a general way the classification methods in use by the A. S. M. E. and by having access to its files, the A. E. S. was at least able to respond to Government requisitions for engineers, qualified for specific duties. Then in January funds were made available by the Engineering Council, and on April 1, A. E. S. headquarters were opened and a manager placed in charge.

From the latter date, great progress has been made, certainly in so far as assistance rendered to the Government is concerned. Definite records show that over 2500 names of engineers were furnished in the five months ending with August 31, and that the work involved in correspondence, in personal interviews, etc., was very considerable. Something over 30 separate departments, divisions, bureaus and the like have turned to the A. E. S. for assistance; obviously, these are in a large part embraced by the War Department. It may be added that the months of September and October have shown no let-up in the work performed.

One phase of the work for which the A. E. S. was created to undertake,

the collection and tabulation of information regarding engineers, has not advanced to so great a degree. Nevertheless, the membership of two of the smaller societies has been classified; the A. E. S. has brought together some 800 classification sheets of engineers, etc., not affiliated with technical organizations; and the first steps have been taken to bring Western societies into line.

On the completion of all business offered by the Secretary for consideration, the President made a statement regarding the prospective activities of the society for the coming year. He announced that the New York Section had adopted the general subject of "Reconstruction" for its winter meetings and that in his belief the Council should assist in mapping out a program—making certain that all Councillors should have a voice.

Extending his remarks, the President stated that, in his opinion, the Society should undertake a survey of the mineral industry to determine what is necessary to be done. He pointed out that those branches of the industry which covered copper, lead, etc., did not perhaps need attention, but that others such as platinum, antimony, mercury, etc., of which there is little knowledge, should be considered. The President suggested that committees should be appointed to gather facts and that, eventually, a statement of these facts would be issued.

Mr. Channing thereupon raised the question as to whether such a survey would not be duplicating the work being undertaken by other organizations, and especially that of the Engineering Council. He suggested co-operation. With this opinion the President agreed, but thought that the activities he had in mind would be supplementary to that to be undertaken by others. The following motion was then passed:

That it is the sense of this meeting that it approves the contemplated program of entering into the campaign for "Reconstruction" and that the Executive Committee is hereby empowered to initiate committees, the members of which are to be appointed by the President.

There being no further business, the meeting adjourned at 2.25 p. m.

LOUIS D. HUNTOON,
Secretary.

Meeting of November 13, 1918.

A meeting of the Council was called by the President to immediately precede the meeting of the New York Section, at the Columbia University Club, New York, on November 13, 1918, at 6.30 p. m. As allowed by the by-laws, the ten days notice for this meeting had been waived for reasons of weight.

The following members were present: Messrs. Channing, Dorr, Huntoon, Ingalls and Sharpless. Mr. Ingalls presided.

Draft of a congratulatory telegram to President T. G. Masaryk, which had been prepared by the Assistant Secretary, was submitted. After some discussion a motion was carried that the following amended telegram should be sent from the office of the Secretary:

President T. G. Masaryk,
2400 Sixteenth St.,
Washington, D. C.

The Mining and Metallurgical Society of America extends heartiest congratulations to you upon the freedom of Bohemia after three hundred years of bondage and on your election to the first presidency of the Czechoslovak Republic. The date of November eleventh which marks the termination of the great war is thus doubly auspicious. Purington of American Committee of Engineers in London would of course subscribe to this expression if he were here.

W. R. INGALLS,
President.

The Secretary reported to the meeting the sad death of Howard W. DuBois, one of the charter members. He also stated that he had ordered flowers to be sent in the name of the Society. This action of the Secretary was heartily approved and he was requested to do likewise in similar cases.

There being no further business, the meeting adjourned.

LOUIS D. HUNTOON,
Secretary.

OBITUARY.

HOWARD WEIDENER DuBOIS.

H. W. DuBois, a charter member of this Society, died suddenly in Philadelphia on Sunday, November 10, 1918.

(An adequate and appreciative notice of the late Mr. DuBois is now in preparation and will appear in a subsequent number of the BULLETIN.)

MEMBERS ELECTED IN NOVEMBER.

Wilber Judson.....14 Wall Street, New York
Alexander K. McDaniel.....50 West 4th Street, Denver, Colo.
R. B. Watson.....Cobalt, Ontario.

CHANGES OF ADDRESS.

Derby, Charles C.Box 459, Route B, San Jose, Cal.
Lachmund, Oscar.....322 Paulsen Bldg., Spokane, Wash.
Lyons, D. A.....U. S. Bureau of Mines, Pittsburgh, Pa.

PERSONALS.

John H. Allen and H. H. Knox left for Mexico on the last day of October. It is understood that Parral is to be their destination.

George O. Argall and J. C. Bruce have been nominated for directors of the American Zinc Institute. The latter, who is already a member of the organization committee, has also received the nomination for second vice-president of this new society.

Philip Argall was engaged, late in October, on professional business in Dolores County, Colorado.

Percy E. Barbour and B. Magnus, both captains of Engineers, have been assigned to Camp Shelby by orders issued November 12. The former will be attached to the 150th Engineers.

E. S. Berry, who is in France as a Captain of the 27th Engineers, reports in a letter, recently received by his office, that he has been for some time past detailed on special staff work and that his duties have taken him close to the front line trenches. Captain Berry further announces that Lieutenant Colonel O. B. Perry, in command of the same regiment, is in the best of health.

W. O. Borchardt presented a paper on "Dust Abatement in Mines" before the seventh annual congress of the National Safety Council. This paper is given in part in the *Engineering and Mining Journal* of November 2 and has been made also the subject of an editorial in the same issue.

Frederick P. Burrall called on the Secretary early in November. He had then only just arrived from the Yukon and left for England on the eleventh of the month. Mr. Burrall reported a considerable curtailment in the gold mining of the northwest.

George E. Collins, under date of November 12, writes to *The New York Times* to suggest that in the event of food being shipped to the Central Powers by the Allies, such supplies should have appropriate labels, as per the following example:

This bread was made from American wheat (or Australian, Indian, as the case may be) brought overseas in British ships. "Deal not with us according to our sins, neither reward us after our iniquities."

Walter Douglas has been on a tour of inspection in Arizona and the Southwest generally.

Edward L. Dufourcq, who returned to this city on October 1, left for Mexico again about the middle of this month.

Stanly A. Easton, manager of the Bunker Hill & Sullivan M. & C. Co., is also president of the Caledonia Mining Co. It is stated in a recent issue of the *Northwest Mining Truth* that, according to unconfirmed rumors, these two properties are to be consolidated.

J. R. Finlay has again left for the Southwest and will take up his residence in Tucson for the winter. Mr. Finlay stopped over in Texas for a few days' visit.

W. Fitch, B. Britton Gottsberger, and W. J. Sharwood are three other members of the State advisory boards which have been established by the U. S. Bureau of Mines to assist in obtaining the release of miners from military duty. Messrs. Fitch and Sharwood are respectively chairmen for the States of Utah and South Dakota, and Mr. Gottsberger is one of the representatives on the Arizona board.

George H. Garrey has been in Alaska and Northwestern British Columbia for the greater part of the summer. He returned to Philadelphia early in September.

H. A. Guess, it is announced, has become general manager of the Nevada Consolidated Copper Co. Mr. Guess has been managing director of the mining department of the A. S. & R. Co.

Fred Hellmann, during the early part of the month, made a tour of inspection of the Mexican properties in which his company is interested.

W. L. Honnold, in an interview reported in *The Evening Post* late in October, makes the statement that overseas headquarters of the Commission for Relief in Belgium would remain in Rotterdam. Mr. Honnold also discusses the present activities of the Commission.

H. C. Hoover, who sailed for Europe on the 16th instant to take up his new responsibilities, made an address on November 12 before a Washington conference of Federal food administrators. According to the *Engineering and Mining Journal*, Mr. Hoover received the following message from King Albert of Belgium under date of October 22:

On this, the fourth anniversary of the foundation of the Commission for Relief in Belgium, my heart prompts me to thank you once more in the name of all my compatriots for having during four years saved the Belgian nation from starvation.—*Albert.*

D. C. Jackling, representing the Utah Copper Co., attended the meeting, on November 15, called by the chairman of the War Industries Board, to determine upon the course to be followed by the copper industry during the transition period.

J. E. Johnson, Jr., presided as chairman at a joint meeting of the four Founder Societies which took place on November 20. The subject for discussion was "The Demand for Steel and the Conservation of Steel," and among the speakers was a representative from the War Industries Board.

Frederic Keffer visited Nez Perce County, Idaho, during the first week in November, to examine mining properties. Prior to this he had been doing similar work in British Columbia.

H. H. Knox, in an open letter, dated October 28, to *The Evening Post*, expresses very clearly his views as to the kind of reparation which should be demanded from Germany.

Halstead Lindsley, Major of Ordinance, who had been on the other side, is now in Washington. Major Lindsley returned something like two months ago.

W. W. Mein, Assistant Secretary of Agriculture, is quoted in the *Engineering and Mining Journal* as emphasizing the need of potash for fertilizers. He points out that high prices during the war had quite generally prevented its use for this purpose.

J. W. Mercer sailed for France on September 25, and has associated himself with the American Red Cross in that country.

R. A. F. Penrose, Jr., has brought out a reprint of his "Memorial of Amos P. Brown," late professor of geology and mineralogy in the University of Pennsylvania. The article originally appeared in Vol. 29 of the *Bulletin of the Geological Society of America*.

George S. Rice writes to the *Engineering and Mining Journal* to call attention to the danger of using gasoline locomotives for underground work unless sufficient ventilation is provided.

William Fleet Robertson has been appointed a special investigator to determine the cause of a serious accident which occurred in the Protection Colliery in Nanaimo, British Columbia.

Francis P. Sinn, of Palmerton, Pennsylvania, is now located much of the time in this city. He is undertaking certain special work for the New Jersey Zinc Co.

W. F. Staunton supplies the photographs to illustrate an article entitled "Tombstone, the Historic Mining Camp," which appears in the October issue of *Mining and Oil Bulletin*. Mr. Staunton was closely associated with Tombstone for many years, and in 1901 became general manager of the Tombstone Consolidated Mines Co.

George C. Stone contributes a biographical sketch of the late John Hamilton Troutman to the *Engineering and Mining Journal* of October 26. Mr. Stone, by the way, is now in Washington assisting the Non-Ferrous Metals Section of the War Industries Board.

Whitman Symmes has become president of the Northend Comstock Mines, Virginia City, Nevada. It was of these properties that Mr. Symmes was for a number of years manager.

S. A. Taylor, as the representative of the Fuel Administration, is one of a committee of three to investigate labor-saving machines in use by the mining industry.

J. B. Tyrrell has been investigating prospective gold properties in the Matachewan district of Northern Ontario. At a recent meeting of the Royal Society of Canada, he presented a paper relating to deposits of vegetable matter which are found underlying gravels of the Klondike.

F. R. Weekes was in California for the greater part of October. He returned to this city just before November 1.

Pope Yeatman left for France on November 1. He expects to be absent for two or three weeks, both in France and in England, in conference with the Programs Committee of the War Industries Board Commission. Mr. Yeatman, by the way, has been appointed by the Secretary of the Treasury one of a committee of five to make a survey of the gold situation. He will represent the War Industries Board. This committee is distinct from that headed by Hennen Jennings, which is investigating a more limited field, the present status of gold production.

George J. Young is the author of "Co-operation Among Small Mines" in the *Engineering and Mining Journal* for November 9. He also contributes an article entitled "Capacity of Belt Magnetic Separators" in the following issue.

**MEMBERS OF THE SOCIETY WHO HAVE BEEN
CALLED INTO THE SERVICE OF THE U. S.
GOVERNMENT AND THE ALLIED ARMIES.**

Lawrence Addicks.....Member, U. S. Naval Consulting Board
 Ralph Arnold.....Member, Board of Tax Reviewers
 Percy E. Barbour.....Capt., Engineer Corps
 Edwin S. Berry.....Capt., 27th Engineers
 Reginald W. Brock.....Major of Canadian forces
 Alfred H. Brooks.....Major, Engineer Corps, A. E. F.
 Gelasio Caetani.....Capt., 1st Reg. of Engineers, Italian Army
 M. F. Chase.....Dir. Explosives Division, War Ind. Board
 C. R. Claghorn.....Lt., U. S. Naval Reserve Force
 J. Morgan Clements.....Bur., Foreign and Domestic Commerce
 Welton J. Crook.....Officers' Training Camp
 Benedict Crowell....Major, Eng. Corps; Asst. Secretary of War
 W. B. Devereux, Jr.....Capt., Aviation Sect., Signal Corps
 J. S. Douglas....Maj. and Dir. Warehouses, American Red Cross
 Francis Drake.....British Aircraft Production Department
 A. S. Dwight.....Major, 11th Engineers, A. E. F.
 Baird Halberstadt....Fed. Fuel Administrator, Schuylkill Co., Pa.
 W. L. Honnold.Am. Dir., Com. for Relief in Belgium
 Herbert C. Hoover.....U. S. Food Administrator
 D. C. Jackling.....Dir., U. S. Explosives Plants
 Donald M. Liddell.....Capt., Aviation Sect., Signal Corps
 Halstead Lindsley.....Major, Ordnance Corps
 J. F. McClelland.....Chief, Prod. Eng., Bur. Aircraft Prod.
 Charles W. McMeekin.....Major, Engineer Corps
 C. H. Macnutt.....Lt. of Engineers in Canadian forces
 B. Magnus.....Capt., Engineer Corps
 W. W. Mein.....Assistant Secretary of Agriculture
 C. W. Merrill.....Div. of Chemicals, U. S. Food Administration
 H. G. Moulton.....Engineer, War Industries Board
 Seeley W. Mudd.....Col. and Asst. Dir., U. S. Explosives Plants

O. B. Perry.....Lt. Col., 27th Engineers
 Joseph Hyde Pratt.....Lt. Col., 105th Engineers, A. E. F.
 A. L. Queneau.....Officer Interpreter, French Army
 M. L. Requa.....Chief of Oil Div., U. S. Fuel Administration
 Edgar Rickard.....U. S. Food Administration
 A. P. Rogers.....Materials Dept., Signal Corps
 W. L. Saunders.....Chairman, U. S. Naval Consulting Board
 Stanley C. Sears.....Capt., Engineer Corps
 Millard K. Shaler.....Hon. Sec., Com. for Relief in Belgium
 J. E. Spurr.....U. S. Shipping Board
 George C. Stone.....War Industries Board
 H. H. Stout.....Lt. Col., Ordnance Corps
 S. A. Taylor.....Tech. Advisor, U. S. Fuel Administration
 S. C. Thomson.....War Export Board
 Arthur L. Walker.....Con. Met. to Chief of Ordnance, U. S. A.
 William Young Westervelt....Chairman, War Minerals Committee
 Pope Yeatman.....Chief, Non-Ferrous Metals Sec., War Ind. Brd.

DIED IN THE SERVICE OF THEIR COUNTRY.

William Hague.....January 1, 1918
 J. D. Irving.....July 20, 1918

Mining and Metallurgical Society of America

Vol. XI, No. 12

December 31, 1918

Bul. 127

ANNOUNCEMENTS.

Meeting of the Society.—The annual meeting of the Society will take place at the Engineer's Club, New York City, on Tuesday, January 14, 1919. As is the custom, two sessions will be held: The first at 2.00 p. m., for the election of officers, the presentation of reports, and for other strictly business purposes; and the second more informal session at 8.30 p. m., to be preceded by a dinner at 6.30 p. m.

Official notice, together with proxy blank, has been sent to all the members, and those who have no expectation of attending the annual meeting are urged to return their proxies properly executed to the Secretary. The constitution of the Society provides that one-third of the membership, present in person or by proxy, is a requisite for the transaction of business at the annual meeting. This emphasizes the need of a large vote by proxy.

New York Section.—A meeting of the New York Section was held at the Columbia University Club, on Monday, December 16, and was largely attended. The usual dinner was served prior to the introduction of the speakers of the evening.

The Spanish Influenza was the subject for discussion, its selection having been occasioned by the remarks of C. R. Corning at the previous meeting. A number of eminent physicians, Drs. Charles T. Baldwin, Charles F. Collins and William H. Park, were present to explain to the members what is known regarding this disease and its remedies.

The complete proceedings of this meeting appear elsewhere in this issue.

Council.—A meeting of the Council was called by the President for December 27, to take place at the Columbia University Club. A postponement was however found to be necessary and thus this meeting will not be held until January 2, 1919, at 4 p. m., at the same place.

An Executive Committee meeting was held on Tuesday, December 3, to make effective certain actions of the Council under date of November 4. The minutes of the meeting are published in this issue of the BULLETIN.

Election of Officers.—The polls for election of officers and councillors for the year 1919 close on January 14. Members who have not as yet voted are urged to do so immediately. Early attention to this matter will much facilitate the work of the Tellers and that of the Secretary's office.

Membership List.—The Secretary's office will presently issue "address slips" upon which will appear the name, occupation or title, and published address, of the members as recorded in the files of the Society. Request is made that the Secretary be promptly informed of any inaccuracies.

It may here be noted that especial care was taken in the preparation of the list of members issued on May 1 of this year. Wherever available, the signature form of the members' names was adopted and former lists were reviewed with the closest attention. Thus, if errors still exist, the assistance of the members is needed for their correction.

U. S. Geological Survey.—As announced in the November BULLETIN, the ready response of the members to the "Survey's" request for data regarding foreign ore deposits has been highly satisfactory. There are, however, many yet to be heard from, and the Secretary once again calls upon the members to come forward with their records of experience in foreign lands.

COMMUNICATIONS.

War Devastated Villages.—It is quite evident that succor must still be extended to the population of that part of France which, until recently, was held by the enemy. This may continue to be true even after peace has been formally signed. However, under any circumstance, the following letter from Mr. Wethey, written from Paris two days following the declaration of the armistice, should prove of real interest:

Your letter of Sept. 24 was received considerably before the August BULLETIN arrived. It was certainly very kind of you to speak so nicely in the BULLETIN about the Society in which I am interested.

I hope, now that the war is over, it will not be long before these poor destitute people may be able to return to their homes. The French Government has allotted us a large Canton of 21 villages to look after, and we have a staff of ladies who will start in a few days to live in the little town and

form a centre of relief. By degrees as the houses are repaired and built up and "barraques" erected the people will be able to return. They are all so anxious to get back and cultivate their land. Of some of the villages in the Somme nothing remains but a heap of rubbish, and in others the asphyxiating gases hang about the houses for a long time rendering them uninhabitable.

The people stand in need of the barest necessities of life, and the clothing, beds, quilts, kitchen utensils, etc., we are able to provide them with are of the greatest comfort to them. We only wish we had an ample supply for everyone of them.

We also supply them with agricultural implements and seeds.

When our villages were evacuated at the time of the German advance in March, the Government provided us with an old Chateau where we were able to house about 100 refugee women and children. The Chateau is very large and in the Salon we have started an Ouvroir where a large number of women work daily, making articles of clothing, and household linen of all kinds for the benefit of the refugees. This enables them to earn money, and is much appreciated. There is also a soup kitchen where nourishing soup is given to the children and invalids.

A large piece of land has been cultivated for vegetables, and we are raising live stock. Cows, pigs, poultry and rabbits. We pay all the refugees for the work they do, and this encourages them, and the daily employment given improves their moral condition and they feel that some one is interested in them and trying to help them.

Yours very truly,

A. H. WETHEY.

Minerals Administration.—Special correspondence to *The New York Times*, with date of November 23, announced the appointment of Secretary Franklin K. Lane administrator under the minerals-control bill, which was signed by President Wilson on October 5. It will be noted that the order was issued on the day upon which the armistice was declared:

EXECUTIVE ORDER NO. 2,990.

By virtue of the power and authority vested in me by the act of Congress providing further for the national security and defense by encouraging the production, conserving the supply and controlling the distribution of certain ores, metals and minerals, approved Oct. 5, 1918, I hereby direct that the Secretary of the Interior shall exercise the powers and authority given under the act to the President, except those relating to duties upon imports.

WOODROW WILSON.

The White House, Nov. 11, 1918.

Copy of this measure, as finally adopted, reached this office late in November. As predicted, it bears but little similarity to that passed originally by the House of Representatives. For one thing, the text of the bill has been much curtailed, only 12 sections as against 23 in H. R. 11259. Two unimportant changes were made—sodium taking the place of sea-salt and phosphorous being included—in the first section, but the descriptive phrase "intermediate metallurgical products," to which exception had been taken, is retained. It should however be stated that the

indefinite wording "other rare or unusual elements" has been eliminated from the bill as passed, and that under Section 3 it is provided that no ores shall be requisitioned of which the principal money value is derived from metals, or minerals, other than those specified in the bill. On the other hand, the provisions of the earlier bill for compensation for mines, smelters, etc., if taken over by the Government have not been materially changed.

The new bill omits the clause permitting the issuance of licenses for mining, etc., but does include authorization for the formation of corporations to carry out the powers given by it. The appropriation of \$50,000,000 is the same as that allowed in the first House measure, and it is now stipulated that, in case corporations are formed, their aggregate capitalization shall not exceed the amount of said appropriation.

Referring especially to this revolving fund appropriated by the Congress to carry out the provisions of the War Minerals Act, the Washington correspondent of the *Engineering and Mining Journal* in the December 7th issue points out that, according to present indications, no part of this fund will be expended, and gives very strong reasons for holding this opinion. For one thing it appears quite certain that a surplus supply of domestic chromite is now on hand, and that the problem confronting the Government is rather one of determining how to moderate the probable losses of the producer of chromite ores who had embarked in this industry solely to meet war needs. This correspondent goes on to state that the situation with respect to manganese and pyrite is quite similar, but that it seems fairly evident that no assistance can be given under the War Minerals Act in any one of these cases.

Crippled American Soldiers.—In the BULLETIN for March, and again in that of May, was printed a communication relative to the rehabilitation of the crippled soldiers received from Lew R. Palmer, then Acting Commissioner of Labor and Industry for the State of Pennsylvania. This state early called on its employers of labor for co-operation, and by means of questionnaires sought to determine what opportunities existed for the placement of men disabled in war service.

Now comes an issue of *The Bulletin* of the Pennsylvania Department of Labor and Industry which, after devoting a few pages to the general subject in question, gives a compilation of the information obtained from the returned questionnaires. It has been prepared by S. S. Riddle.

U. S. Bureau of Mines.—The following abstract from a letter to Louis D. Huntoon received two weeks ago from H. A.

Buehler, Chief of the Pyrite Section of the War Minerals Investigation, should not be omitted from the BULLETIN.

I appreciate the information regarding the West Milan (pyrites) mine which is an acceptable addition to our files. You have submitted during the year about the only information we have received covering the New England situation, and I have appreciated it very much.

Potash Production.—One phase of readjustment has resulted in the transfer of the inquiry relative to the production of potash from the Chemical Division of the War Industries Board to the Department of the Interior. In an interview with B. M. Baruch, *The New York Times* of November 29 quotes him as having stated that the problems in connection with an increased supply of potash require a solution for the purpose of "emancipating the American farmer from the grip of Germany's monopoly on the world's supply of fertilizing material." He points out that only an established department of the Government can undertake the necessary investigation.

Mr. Baruch is quoted at considerable length with regard to the possible sources of potash, and among these mentions that of blast furnace fumes, adding that one method for the extraction of potash from these fumes has been devised by F. G. Cottrell.

The *Engineering and Mining Journal* has already called attention to the shortage of potash and to the fact that high prices have curtailed its use for fertilizers. It furthermore assumes that the inquiry will be undertaken by the U. S. Bureau of Mines, with the U. S. Geological Survey and the Department of Agriculture as associates, and continues by giving the views of W. W. Mein, Assistant Secretary of Agriculture, on the potash situation, which are apparently quite similar to those of Mr. Baruch.

All of this is particularly pertinent at this time in so far as it relates to the program on reconstruction initiated by the New York Section. This very subject was discussed at its recent meeting and, although as one of the members stated the production of potash is hardly within the province of the mining engineer, it will nevertheless presumably receive some consideration.

OTHER SOCIETIES.

ENGINEERING COUNCIL.

A special meeting of the Engineering Council, held on November 21, was apparently of considerable importance, or at least such is the impression gained by a perusal of the minutes, copy of which arrived too late for inclusion in the November BULLETIN.

Under the heading "Field of Activity of Engineering Council" appears the following preamble and resolutions, which were adopted by the meeting:

Whereas, United Engineering Society has, in accordance with the desires of the four Founder Societies (American Society of Civil Engineers, American Institute of Mining Engineers, American Society of Mechanical Engineers, American Institute of Electrical Engineers), established a department, "in addition to its other activities and entirely separate therefrom," "known as the Engineering Council"; and

Whereas, Provision has been made for the admission of "other national engineering or technical societies"; and

Whereas, The by-laws of United Engineering Society stipulate that Engineering Council is to provide for convenient co-operation between Engineering Societies, "for the proper consideration of questions of general interest to engineers and to the public, and to provide the means for united action upon questions of common concern to engineers," and that "Council may speak authoritatively for all member societies on all public questions of common interest or concern to engineers, unless objection be made by a majority of the representatives present of one of the Founder Societies or by one-quarter of the representatives present and voting"; be it

Resolved, That Engineering Council understands its field of activity to be approximately as follows:

(1) Council may deal with any matter of general interest for which joint action of two or more of its member societies would have been appropriate, if Council had not been established.

(2) Council may initiate and carry through projects of the general character defined in the by-laws, for which the necessary financial provision has been made; but Council shall not undertake expenditures in excess of appropriations for its uses made by United Engineering Society on behalf of the Founder Societies and the contributions from other member societies, unless specific provision shall have been made therefor by subscription, donation or otherwise; moneys received by Engineering Council shall be turned into the treasury of United Engineering Society and disbursed by it, for the purposes designated.

(3) Council may take up, and in its discretion act upon, any matter of general interest referred to it by any member society or by any other society, national, state or local, or any branch of Government, or by any individual or group of individuals.

Resolved, That Engineering Council will as a rule avoid considering any matter which is specifically within the province of only one member society and not of the others.

These minutes also include text of correspondence between J. Parke Channing, Chairman of the Engineering Council, and President Wilson, dated November 15 and 20. As these letters refer to the subject of Reconstruction, which, at this time, is of much interest to the members, they are here reprinted:

THE PRESIDENT,
The White House,
Washington, D. C.

Sir:

I am advised that you have under consideration the appointment of a

Reconstruction Commission to develop a comprehensive program for the Nation's conversion from a war to a peace basis.

As Chairman of Engineering Council, I respectfully ask you that you consider the appointment of at least one engineer upon this commission, basing my recommendation upon the fact that all construction and practically all manufacturing is under the management of engineers.

Engineering Council is an organization of National Technical Societies of America, created to provide for consideration of matters of common concern to Engineers, as well as those of public welfare in which the Profession is interested, in order that united action may be possible. It represents the four great National Engineering Societies, comprising over 35,000 members, including practically all of the prominent engineers in the country.

It may be pertinent to add that the personnel of Engineering Council, consisting of 24 members, is without exception men who occupy prominent positions as administrators of engineering problems or undertakings.

Respectfully submitted,

J. PARKE CHANNING,

Chairman.

My dear Mr. Channing.

I have your letter of November 15th, which Mr. Rickard has been kind enough to hand me. You may rest assured that I realize what a service engineers can render in reconstruction problems from time to time. We are handling reconstruction questions just now by a process of consultation between existing instrumentalities, which I hope will prove useful and effective.

Cordially and sincerely yours,

WOODROW WILSON.

War Committee of Technical Societies.—At its meeting of November 21, the Engineering Council voted that the War Committee of Technical Societies should be dissolved on December 31, or on some earlier date, if found practicable. This action was taken at the suggestion of D. W. Brunton, Chairman of the W. C. T. S.

A little later, some final word will be published in the *BULLETIN* as to the past activities of this war committee when official reports are made available.

American Engineering Service.—On November 20, at the call of J. Parke Channing, Chairman of the Engineering Council, an informal joint meeting of the secretaries of the founder societies and the members of the American Engineering Service was held in the Engineering Societies Building, to discuss the possible creation of a central employment agency for the benefit of the engineering profession.

Those who attended follow: The Secretaries, Charles Warren Hunt, A. S. C. E., F. L. Hutchinson, A. I. E. E., Calvin W. Rice, A. S. M. E. and Bradley Stoughton, A. I. M. E.; William A. Del Mar, A. I. E. E., George J. Foran, A. S. M. E., W. Herman Greul, A. S. M. E., J. P. H. Perry, A. S. C. E., F. T. Rubidge, A. I. M. E., Edward B. Sturgis, M. M. S. A., and W. V. Brown, representing the

American Engineering Service; J. Parke Channing and Alfred D. Flinn, representing the Engineering Council. Mr. J. V. N. Dorr, A. I. M. E., was invited to be also present.

Because of the importance of the subject under consideration, the minutes of this meeting are printed below nearly in their entirety:

There was a free and general discussion in which each person present had opportunity to express opinions. All agreed that some form of employment activity was necessary and should be conducted by the societies represented. It was pointed out that important reasons for a central bureau were greater possibilities for proper publicity, through advertising and other means, and greater independence in suggesting names of engineers for engagements. It was agreed that the activities of societies could be combined to advantage, although each society might still find it desirable to do more or less in the employment line for its own members.

It was agreed that the proposed employment activities could best be inaugurated and directed by the four Founder Secretaries, acting as a board of managers. It was also the consensus of opinion that the activities should not be confined to members of the four Founder Societies, and that no distinction should be made between members and non-members.

Charges for services were discussed, and it was concluded to leave this matter for later determination. It was pointed out that if regular fees were charged, incorporation under state laws would become necessary and a bond would have to be furnished. It was determined that the work be started on a basis of no charge.

All agreed emphatically that the work should be started immediately and that the existing force, equipment and files of information of American Engineering Service should be utilized so far as practicable.

It was the sense of the meeting that Engineering Council should establish at once an Engineering Societies Employment Bureau, of which the four Founder Secretaries should be appointed the Board of Managers, with Walter V. Brown as Secretary in immediate charge.

It was the consensus of opinion that the war work of American Engineering Service having come practically to an end, the committee should be abolished at an early date.

It was the sense of the meeting that Mr. Brown should communicate at once by letter with all engineering societies in the country, also with managers, chief engineers and other officials of corporations and governmental bodies employing engineers, and that such communications should thereafter be repeated periodically. Suitable and wide publicity should also be given to the services which Engineering Societies Employment Bureau would be prepared to perform for engineers and employers and clients of engineers.

There should be established at once and maintained lists of engineers desiring employment or change of employment, together with such information about each individual as would be necessary for the purpose.

These conclusions having been reached, although informally, Mr. Foran, Chairman of the American Engineering Service, who is also a representative to the E. C., presented the resolutions which follow at the meeting of the Engineering Council, which took place on the next day (November 21), and they were adopted:

Whereas, American Engineering Service has completed the special work for which it was created; and

Whereas, Any further service rendered by this committee would be pure employment work which, as already pointed out, could be satisfactorily performed only with the co-operation of the Secretaries of the Founder Societies and their established employment bureaus (by whom eventually this entire work must be carried on); and

Whereas, At a joint meeting held November 20 by the said Secretaries and the A. E. S., the Secretaries expressed entire willingness to organize a combined employment bureau and enter immediately into this special work, with the assistance of the present office staff of the A. E. S., and operating as a committee of Engineering Council; and

Whereas, The organization and activities of such a bureau were unanimously approved by the joint meeting, without a dissenting voice; therefore be it

Resolved, That Engineering Council establish at once an Engineering Societies Employment Bureau, of which the four Founder Secretaries shall be appointed the board of managers, with Walter V. Brown as secretary in immediate charge; that letterheads and other printed matter required bear the names of the supporting societies, and that suitable appropriation be made by Engineering Council for inaugurating this work.

Resolved, That the A. E. S. be instructed to turn over its entire office equipment and records, and to instruct its operating staff to report for further service to said bureau when organized.

Resolved, That thereupon American Engineering Service be automatically discharged.

Resolved, That all unexpended funds already appropriated for American Engineering Service be placed at the disposal of Engineering Societies Employment Bureau.

Resolved, That copies of this resolution be forwarded to the Secretaries of the Founder Societies and the American Engineering Service.

Thereupon, as a fitting conclusion to this action of the Engineering Council in dissolving the American Engineering Service, the following resolution was unanimously adopted by the meeting:

Whereas, The work of American Engineering Service now drawing to a close, has been of inestimable value to the Government and to those members of the four Founder Societies desiring to help the Government in its war work, and

Whereas, Co-operation between the Government Departments and American Engineering Service could not have been carried to its full fruition had it not been for the excellent work done by the Chairman and members of American Engineering Service, now, therefore, be it

Resolved, That Engineering Council expresses its high appreciation of the accomplishments of George J. Foran and his associates during his chairmanship of American Engineering Service.

The Secretary of American Engineering Service has prepared a report which records in some detail the activities of this "Service" during the eighteen months of its existence. At some later time, this report, or abstracts from it, will be printed in the BULLETIN.

MEETINGS OF SECTIONS.

NEW YORK SECTION.

Meeting of December 16, 1918.

An unusually well attended meeting of the New York Section took place at the Columbia University Club on Monday, December 16. An informal dinner preceded the evening's discussion.

Although this Section has elected to devote its sessions for 1918-1919 to a program of Reconstruction, it seemed expedient to give one evening to a discussion of the Spanish influenza, and as the subject is of immediate importance an early occasion was selected.

The officers of the Section were fortunate in securing the presence of Doctors Charles T. Baldwin, Charles F. Collins and William H. Park, to address the members and to give them an insight into the history and character of influenza epidemics.

This was the first meeting of the new régime and the recently elected chairman, S. H. Ball, presided. Other members present were as follows: H. M. Chance, C. R. Corning, J. V. N. Dorr, C. V. Drew, H. W. Hardinge, L. D. Huntoon, W. R. Ingalls, W. Judson, E. B. Kirby, J. Langton, J. V. Lewis, A. C. Ludlum, W. W. Mein, F. W. O'Neil, R. Peele, F. Rutherford, F. F. Sharpless, H. DeWitt Smith, O. Sussman, G. D. Van Arsdale, A. P. Watt, and G. J. Young.

In addition to the three speakers noted above, the following guests attended the meeting: P. G. Beckett, C. Bernard, Cav. Camillo Cerruti, Dr. W. Coleman, René de Sallier, G. H. Gillespie, Major E. B. Harran, C. M. Henrotin, W. Lawson, H. K. Masters, C. E. Mills, Dr. Hans Sulzer, E. B. Sturgis, G. W. Tower, Jr., and Captain Jean Velay.

The Chairman.—The subject for the evening's discussion is the relation of the Spanish influenza to the mining industry. It is needless to recall to those present how the mining industry as a whole, and more particularly in certain camps, has been slowed down as a result of the ravages of this epidemic. It is only necessary to cite the case of the De Beers mines in South Africa, which have some twelve thousand native laborers in their compounds. The epidemic broke out there and the reports state that some twenty-seven hundred of the blacks died. That is something like 25%, to say nothing of the loss of efficiency due to the condition of the other men whose strength had been sapped by the disease. I understand that in the Premier mines, in which the natives live in similar compounds but where a preventative of one sort or another was used, the loss of life was practically nil.

In the West, at least, the epidemic is still raging and, as many of us are employers of labor in the West, I think it is very fitting that we should listen this evening to the discussion on the influenza by eminent members of a brother profession and be in a position to give the benefit of this evening's discussion to the doctors at the respective camps in which we are interested.

I remember some years ago we tried to get into telegraphic communication with one of the members of the Society. He stated that when the telegram arrived it was addressed to him care of the Mining and Mental Surgical Society. (Laughter.) Looking around tonight, I think that that was not an error in transmission but a prophecy. (Laughter.) Dr. Charles F. Collins of New York will tell us what the Spanish influenza is and, further, something of the history of the epidemic. Dr. Collins. (Applause.)

Dr. Collins.—Gentlemen, what I am going to tell you is very simple. I will try not to go into science but just give you an outline of the disease, a rough outline picture of what the disease is. I am only going to speak for a few minutes on the influenza.

We are apt to think that the world, and our community, have been stricken with a new scourge, but such is not the fact, for its history can be traced as far back as the beginning of the XVIth Century. Up to 1870, ninety epidemics of this type have been described, spread over whole countries, and, in fact, the whole world has at times been visited by them. Past epidemics broke out in all parts of the world simultaneously. The duration usually is from four to six weeks, though at times—as in Paris in 1831—from nine to ten months. This is the longest on record. The age of those attacked varies in different epidemics, though as a rule all classes of society and all ages are prone to develop it. Crowded community life seems to favor its development, as we have seen in our camps. Although simple influenza *per se* is not so very fatal in healthy individuals, yet the death rate of communities attacked is always greatly increased, due to complications of the disease, a great factor of mortality.

It is claimed that one attack gives no immunity or protection against reinfection, yet from our present point of view those who have had it seem for a time to be exempt. At you possibly know, other infectious diseases give the individual a certain amount of immunity and then there is inherited immunity by ancestors. There are some instances of ships being wrecked and the sailors, suffering from infectious disease being cast upon an island, the natives are infected and die like rats, showing that we have inherited immunity by birth conditions. There are diseases, such as smallpox, which if a man has them once I believe there is no record of his having them

a second time; so, in this epidemic of influenza, those who have had it seem to escape it for some time.

Our last epidemic in 1890, I can remember, was known as Russian grippe, and if I am not mistaken the epidemic of 1840 was called Webster or Tyler. The bacteria of that epidemic may not have been quite the identical bacteria as in our present one, but the patients on the whole presented almost the same picture. Some types were prevalent then, others prevalent now.

In general terms, this infection is an infection of the general system, with constitutional poisoning or toxæmia, as we say, and associated complications; that is, a lesion or disease of some organ or part of the body not involved at the outset, or the complicating trouble may be due to the infection of some specific bacteria which is co-existent with the influenza germ. For instance, the pneumonia bacillus, more or less ever present, may have the power of developing a complicating pneumonia in the sufferer from the poisoning of influenza; in fact, that has been the one and most important factor causing death during this epidemic. The pneumonia in this disease is apt to come on after the influenza infection has been going on for several days. In many cases, the patient apparently is recovering from the initial attack of the grippe, then we notice he is not so well, the temperature goes up again, and, by careful examination of the chest at frequent intervals, we detect a small spot of pneumonia beginning which in one or two days involves a great or small portion of one or both lungs. It is not like the usual acute pneumonia which we find as an isolated infection, but a slow growing pneumonia with much congestion of lung (if you will allow me that loose and rather unscientific medical phrase)—it creeps, so to speak, in the lungs slowly, involving more and more areas. Likewise, when recovery takes place, the lung involvement clears up slowly, taking several days, or even weeks, before the lung tissue gradually assumes normal conditions and functions. This general infection gives certain general constitutional symptoms, many of which are common during the infection, such as fever, preceded by chill or chilly sensations, headache, flushed face, prostration, loss of appetite and coated tongue, pains in the body and extremities, and general malaise. So much for the general symptoms of infection of the body's chemical machine as a whole. This, though, is not characteristic of influenza, for the characteristic power of the influenza bacteria is to cause trouble and distress in the mucous membranes of its victims, which gives us then the picture of watering eyes, sneezing, excess secretion in the nose, red membranes in the throat, inflammation of the membranes of the bronchial tubes; in other words, bronchitis, at times inflammation of the mucous membranes

of the stomach, associated with gastritis producing vomiting, loss of appetite, then possibly extending to the mucous membranes of the intestines, both small and large, and when these are attacked we have watery stools accompanied with pain and cramps.

With a poisoning involving the whole system, you can readily understand the infection may travel to certain localities or organs of the body; for instance, inflammation of the ear, even involving the mastoid cells behind the ear, leading to so-called mastoiditis, known to the layman as the disease for which the specialist charges high prices when he operates.

In some epidemics there have been a number of cases where the infection has involved the membranes of the brain and the spinal cord, giving a meningitis. Pneumonia is more or less a frequent complication, though that is another disease grafted on to the influenza condition. All these symptoms are by no means necessarily present in all cases; in fact, quite the reverse. Usually, certain types or varieties are grouped so that we medical men are accustomed to classify an influenza case according to predominating symptoms. All cases are not severe—some are very mild—and many cases are free from complications.

The usual characteristic symptoms present in the great majority of cases at the outset are, as I mentioned before, chilly sensations followed by fever, some general body muscular pains, prostration, headache and loss of appetite, and some catarrhal symptoms. If none of these symptoms are exaggerated and no complications arise, such a case is sick for three or four days, recovers, is rather below par in strength for a few days, then picks up and goes about his business as usual.

As I said before, all cases do not behave like a simple or moderately severe poisoning; certain ones will have one or more of these symptoms intensely exaggerated. There are those, for instance, where the pains in the head and body are intense, the muscles all over excruciatingly tender, the head pain almost beyond endurance, nerves ache like a neuritis, the temperature may go very high, 102 to 106. The case is one of intense suffering. The next case may be a case of prostration of the body with profound lowness of mind, running into a melancholia, which are the salient symptoms. Others again have only the catarrhal symptoms of the nose, eyes and bronchial tubes, and that will make up the whole attack. Besides these, the mentioned dysentery runs on to a chronic bowel and gastric disturbance with gradual emaciation and death. One might divide the types almost *ad infinitum*, and in different epidemics different types seem to predominate.

The epidemic of 1890 in New York, I remember very well, it being my first year in general practice. I have no recorded data or statistics at hand, but the types which I specially recall as being more prevalent in the epidemic of 1890, were the great mental depressions and melancholias, and the painful after neuritis and neuralgia. Many ear cases and death especially in the aged, apparently from weakness and heart exhaustion. There were many cases of skin rashes.

In this epidemic, it is a little too soon to have percentages and make groups, though, of course, records of various communities are being kept which later will be available and valuable. My own experience, in private and hospital work, covers such a small number of the great total, that it would be presumptuous on my part to state any conclusions; yet, in the medical gatherings where observers are giving their findings, I find my own experience corresponding to theirs, and if I am allowed, I will say, though this is not *ex cathedra*, that I have found the old people do not seem to be attacked in this epidemic in as great proportion as in the last one, but that the middle aged and young, including infants, make up most of the victims, and that the disease itself as such is not very severe or fatal, but that the complication of pneumonia, pleurisy with fluid or pus in the chest cavity, is very prevalent and does help to raise very markedly the percentage of mortality. (Applause.)

The Chairman.—Having heard Dr. Collins' very clear exposition of what the influenza is, I will call on Dr. William H. Park, of the Research Laboratory of the Department of Health of New York, to tell us something of the methods for combating the Spanish influenza. (Applause.)

Dr. Park.—Mr. Chairman and members: I understand that it is rather an unusual event for you to listen to a medical talk. I assure you that it is a great pleasure for me to come here. The medical profession is still striving to get some clear views on influenza. We do not know the germ causing influenza. We believe, and I think that you can all appreciate it, that an epidemic must have one germ producing it. If there is an epidemic of small-pox it is the small-pox germ that makes it whatever it is, here, in Africa, in Europe, it makes no difference where. We know that an epidemic of measles is caused by the measles germ, even if we do not know what the measles germ is.

Now, Pfeiffer, a couple of years after the epidemic of 1890, thought he had discovered the germ and called it the influenza bacillus. The cases he found it in happened two years after the epidemic had passed and it is not certain that the germ which he found

abundantly in the cases was the germ of the epidemic. Pfeiffer in this epidemic in Germany has been unable in many cases to find his own influenza germ. In the eastern states, when the epidemic first started in America, we thought the influenza germ was probably the cause of this epidemic, because in Boston among the sailors at Chelsea Hospital and also here in New York we found the influenza germ regularly present, and sometimes absolutely nothing else. As the disease passed westward however and the men in the laboratories examined cases, it was found that the influenza germ was not present in a great many cases—in some places it would be present, and in some places it would not be.

As an epidemic must be due to a single germ, it can't be due to the influenza germ in the East and to another germ in Chicago. If we have identified the real cause of the epidemic it must be the same everywhere. So, we have agreed that we do not know the disease germ.

Now, Nicolle in France thinks that he has shown, by filtering the infectious sputum, that there is a virus which passes through the filter. This, injected under the skin, will cause a disease like influenza. Of course, with our present methods we can't hope to do anything more than experiment with a living entity, about which we know nothing except the effects. In this country, in the Army and Navy, we have tried to repeat Nicolle's experiments but have been unable to confirm them.

Our idea now is that there is something like a measles virus, without the rash, which spreads from case to case, something which in itself is not a serious thing. We have an irregular fever with pains, etc., and soon recover. The real thing that most of us call influenza is the complication; that is, just as last year when the measles broke out in the camps—especially in the southern camps—not realizing the importance of not allowing men to get up and go about their work before completely well, pneumonia developed and we had hundreds of fatal cases among these men, and so in influenza we believe that there is a virus, the nature of which we do not know, which is very infectious, which passes through the population, about 15 to 30% becoming infected. The more carefully you watch people the more you find are infected and then a certain proportion of these, say 15%, have the complicating infections which have been described as the influenza.

The infection of the lungs is the thing that actually gives the really serious symptoms. Our feeling in the laboratories is that we are immune to an attack of the influenza after an attack. It is the complication of the influenza germs, the pneumonia germs and others that have their violence raised by spreading from patient to

patient, and for years afterward we expect colds and so called influenza, over and over again. It is really the complicating germ and not this virus which has swept over the land, but I have no idea that this disease will sweep over the whole world soon again.

The value of quarantine: On an island outside of San Francisco, we had five thousand marines and no personal contact with that island was permitted. The boat that brought the food and other things came to the dock where there was a little trolley, and the things were put on the trolley and transferred by that trolley fifty or sixty feet and taken off, and there was no infection because there was no personal contact, and we know by preventing personal contact we can prevent attack. Of course, it is hard to keep all personal contact away. If you once get disease in, the quarantine fails, and the disease spreads; so that in a country like this we deliberately didn't try to quarantine because we thought it would be hopeless, and interfere with the going out of the troops to Europe. We didn't realize how serious it would be, but even if we had I think we would have allowed the danger to come.

The use of vaccine: One of the most difficult things to decide has been whether vaccines have done good or not. I was over on the other side a year ago and spoke to the men in the French army and the English army. They said, "We don't have to trouble ourselves about typhoid and paratyphoid, they are almost wiped out. In the first six months of the war nearly half of the French troops were not vaccinated and they had three or four hundred cases of typhoid a day, but they all became vaccinated and the typhoid came to an end." I asked our Government, "Shall I train laboratory men on the typhoid bacillus?" and it said, "No, don't bother about typhoid, we have immunized against typhoid and there is now practically none." In the Rand mines in Africa the men were immunized against pneumonia and pneumonias were very much lessened after vaccination. All over this country and abroad, men were trying and hoping to get something to immunize against this influenza and its complications.

At first we thought the influenza germ was responsible, and so in New York, Washington and Boston, we used the influenza germ as a vaccination, but found as we gathered together statistics that, although a great many people thought that they had had wonderful results—I have had most glowing reports—it was found that they began to vaccinate after the people had been pretty well exposed; and so they got apparently good results because the epidemic had passed when the vaccination had been done. When one compared cases on the very same day in the same locality, one found that the vaccinated and the unvaccinated had about the same results.

I have just come from Chicago where they had a conference of the American Public Health Association, and Dr. Rosenow, a very brilliant man, said that they had had tens of thousands of cases vaccinated, and that of those who had one vaccination, 10% had the disease, of those that were vaccinated twice, 2%, and of those who had three vaccinations, only about one-half of one percent had the disease. But I am perfectly sure, and as I questioned him he almost began to believe it, that the reason the first vaccination gave such little results was that it was at the apex of the epidemic. By the time of the second, the disease was on the wane, and by the time of the third it was pretty well over. This gripe pneumonia is due to a combination of so many kinds of germs that we do not seem to be able to immunize against it, and it just happens that a month ago Dr. McCoy, head of the Hygienic Laboratory of the country in Washington, had charge of an institute of the feeble-minded and he vaccinated with the Rosenow vaccination. Two weeks after the vaccination ended, the epidemic reached that place and 2% more of the vaccinated than of the unvaccinated came down with the disease. The conference passed a resolution that no vaccine in influenza had been proven to do any good, although some men, like Dr. Sherman who is, I believe, chief surgeon for the great United States Steel Corporation industries, and of some of the coke and iron mines, think that they have had most brilliant results, but we, in our cold-blooded way, know that they think that they have had the results, but that if they could sift them out they would find that nothing but a great deal of mental help had been given to the vaccinated. Mental support has been a great deal of help to those who have been vaccinated. We do believe in the vaccine against straight-out pneumonias, and, when we get over this heightened virulence of those mixed varieties of germs, we hope to attack the ordinary pneumonias in the mines, etc., with greater results.

The epidemic has taught us certain things of value. The more crowded people are the more they have the influenza, and its complications. We found that, in our student training camps, where men were crowded together in their barracks the cases were much more severe and where students were separated in their rooms the cases were less in number and very much lighter. If this epidemic strikes again, or another in which pneumonia occurs, we will try as far as possible to separate people, and give them plenty of ventilation. We have found that, by putting the sick to bed at the earliest moment, and providing nursing, we were able to greatly lighten the complicating infections although we did not lessen the actual number of cases.

As to permitting the theatres, the saloons and the schools to remain open, this depends very much on conditions. In our schools

in New York City, we felt that the children were under very much better control and were much safer than at home. In a country district, the closing of the schools may be of great advantage. When you have the sick close together you can do some good by putting shelves between them and by doing everything you can to keep contagion from mouth and nose from spreading infection of the complicating germs. If we can hold down the rapidity of the spread of the cases, we will lessen in that community, in that mine, or in that group of people, the virulence. The quicker it spreads the more virulent it is apt to be. Masks are sometimes used and these should be of fine mesh so that you cannot readily cough through them, but the cloth should not be made too fine or the breath will not pass through. Most people find that, except for those who are sick or are in contact with the sick, it isn't possible to use masks to advantage. You will find that the curve of the epidemic is just the same, in cities that used the masks as in those not using them, but where you take a few people, nurses, etc., and put them into infected wards and have them use the proper masks you will find that they do not become infected as much as others. You have to be careful with your hands—only habit will make the ordinary person take care of the hands going to the mouth. Another thing I think you have to learn from physicians is that, in this epidemic, the moment a person feels ill the thing to do is to go to bed or at least to practically go to bed until you find out whether you are going to be sick or not. That was one of the great difficulties among our soldiers. The men were permitted to walk about during the first day of the fever, and then developed these severe and very fatal pneumonias. That is the only thing the entire medical profession really agrees upon, that to put the patient to bed tends to make the attack light and prevent the pneumonia.

Now, as I say, we have got down to the fact that we can't prevent the epidemic, that we can, by personal cleanliness, by clean habits, by clean glasses and utensils, by clean hands, and by the use of masks when we are actually in touch with the disease, lessen a good deal of infection, and that we can hold down the rapidity of the passage so that we won't be absolutely overwhelmed during the worst days by the accumulation of cases. The virulence will be on the average very much less when the epidemic is controlled. When people are sick, put them to bed and give them nursing. Some physicians have certain medicines which they consider good, but there is no agreement on any medicine. Nursing and rest will certainly lessen the tendency to pneumonia, and pneumonia is the complication which makes the influenza a serious disease.

Now, in closing, let me ask you to be sympathetic toward the physicians who are trying by vaccinations and other means to try

to curtail the epidemic. We are up against a hard proposition and we must confess that, up to now, no vaccines used in this country have demonstrated any real value except the great comfort mentally to those who receive them. (Applause.)

The Chairman.—I am sure we are all very grateful to Dr. Park for his exceedingly interesting talk, and I will now introduce Dr. Charles T. Baldwin of Derby, Connecticut, who will speak to us for some moments on the influenza. (Applause.)

Dr. Baldwin.—Preparatory to my remarks I want to say one thing in connection with the non-poisonous nature of this fluid, which perhaps I am too sanguine about. In one case, quite by accident, an elderly woman who had an attack of influenza took half an ordinary tumblerful (four ounces) of this solution clear. I wouldn't have dared to give such a dose experimentally, but as it was an accident it is interesting to say that there were no untoward results. On the contrary, the lady ate a good breakfast the next morning. She had had a temperature of 105 the evening before, now she was nearly normal and the attack seemed to have passed off. The effects of the remedy passed off without any untoward, or any poisonous, result.

I will, as straightforwardly and lucidly as I am able to, give you the results of a number of experiences with the use of this fluid, which I believe is something of a prophylactic and will cure the infection. Ever since the epidemic of 1889-90, I have been a strong believer in active treatment against infective colds, influenza and pneumonia. Practicing in Rome, Italy, during that epidemic gave a good opportunity to discuss and compare methods of treatment with Italian, English, French and German physicians, and also with those of other nationalities. It was then generally conceded that those who treated influenza actively had fewer cases of pneumonia develop, and in their cases of pneumonia had fewer fatalities. The salicylates when well borne, and benzoate of soda in large doses otherwise, was the favorite active treatment. Creosote was looked upon with favor in pneumonia. The symptomatic and sustaining remedies were of course used when indicated. Nitro-glycerin was held important. Dr. A. A. Smith of New York, some thirty years ago advocated nitro-glycerin to effect, regardless of dosage in cyanosis. I believe he was sound in that, and that many have forgotten it to their cost.

Whether the 1918 epidemic is of the same character as the epidemic of 1889-90 is still uncertain, but its mortality rate (that is, the mortality rate of the 1918 epidemic) is far in excess of it, though the morbidity rate of the Russian epidemic was greater. The various

methods of treatment advocated, I have studied with respect and interest, while looking for something immediately available for the general public.

Having experimented with a chemical compound of lime and creosote, alleged to be non-poisonous, in various infective diseases, and observed it to be effective against several toxic diseases, including ptomaine poisoning, I believed it to promise some usefulness against influenza. Being sensitive to this infection, and believing that I would not survive another epidemic unless something was found effective as a cure and prophylactic, I used this aqueous solution of lime and creosote on myself rather recklessly. To my surprise I experienced no untoward results, but was improved in several particulars. Premonitory symptoms of influenza were remarkably cleared, such as coryza, muscular pain, general debility and loss of appetite. My influenza patients began to make such good recoveries that I soon decided that this solution was acting as a true specific against the infection. After further convincing observations, I decided that it was my duty to give the remedy to the public as widely as possible, especially to our Army and Navy. Subsequent observations have convinced me that the solution is also effective against the toxæmia of pneumonia. Here we have colossal infection, and the toxæmia is what kills the patient. In the present epidemic, that toxæmia is variously manifested, notably in both broncho and lobar pneumonia, severe cyanosis and oedema of the lungs. To meet the toxæmia, my dependence is upon the aqueous solution of lime and creosote. To relieve the cyanosis I depend upon adequate doses of nitro-glycerin given frequently enough for a sustained effect. I believe the charts of cases will adequately illustrate this to any physician. I have repeatedly seen cyanosis clear up, and oedema of the lung, as well, under this treatment.

We first observe the blueness of the nails, then the gradual spread of this to the skin and lips, then the feeling in the patient of impending suffocation, the coarse bubbling rattle of the chest, sometimes called the death rattle, then the grey pallor of death. Having repeatedly seen severe cyanosis and oedema of the lung, with a sense of impending suffocation, yield to nitro-glycerin and the solution, I am bold enough to state as my belief that in the calcreose solution we have a remedy against even the toxæmia of pneumonia.

I have with me the charts and histories of six cases of pneumonia, some of them having been examples of extreme cyanosis and even of commencing oedema of the lungs. In my practice, I have had no death from pneumonia during this epidemic, though, in this connection, I would say that that may be more due to good

fortune in not having met necessarily fatal complications, such as diabetes or uremic poisoning, which generally makes a necessarily fatal ending of pneumonia, though my cases have ranged from four months to seventy-five years of age. Also, I have had the pleasure of seeing several recoveries in desperate cases seen in consultations. Several cases of pneumonia have been without nursing or adequate care, and have made good recoveries with the aid of the solution and with what little attention I could give at long intervals.

Now, I will beg your indulgence while I relate, quite from memory, a case which seems to me remarkable. A young lady of twenty-eight called me Saturday. I found her with pneumonia involving the lower lobe of the right lung and a temperature of 105. The pulse was 138. As no nurse was obtainable, I was obliged to depend upon a married sister with no training. I was obliged to teach her the use of the thermometer. As the young woman had a loud obstructive mitral murmur from an attack of rheumatism some years previously, I was doubtful about the outcome. By Thursday morning things had progressed so favorably that I thought convalescence was near. The temperature had dropped to 99 $\frac{1}{2}$ and resolution seemed begun. Thursday noon the temperature suddenly shot up to 105 and the patient became cyanotic, with a sense of impending suffocation. The condition I found was sufficiently grave to dismay me. Fine crepitant ralis at base of left lung and coarse bubbling ralis over the whole upper chest, indicative of oedema. The patient declared she was dying, that the medicine had disagreed with her, and that she would take no more of it. She also declared that every time her heart beat it pulled her over. As the pulse was 160, that alone seemed serious.

I persuaded her that the disease instead of the medicine was at fault, doubled the dose of calcreose solution and administered 1/50th of a grain of nitro-glycerin every hour for three doses. Then things were so far relieved that I left the nitro-glycerin to be administered by mouth, 1/100th of a grain, at two hour intervals. At four hour intervals, I administered a pill containing 4 m. tr. digitalis, 2 m. tr. strophanthus and 1/60th gr. strychnine. The patient took at this time four teaspoonfuls of calcreose solution every two hours; also, during portions of the treatment, five grains of salicylate of magnesia, a favorite preparation when I think the salicylate of magnesia is indicated, as it sometimes is in these cases. I find that salicylate of magnesia is borne better by the stomach and is less depressing to the heart action. She has made a good recovery, though she still has the mitral murmur.

The youngest case of broncho-pneumonia was four months of age. Her sister, four years of age, also had a broncho-pneumonia.

and five other children had severe influenza. A young man twenty-seven years old, boarding in the family, had pneumonia at the base of the right lung. All made good recoveries, though no care was available save that given by the mother of the family. The treatment was simple, for the most part consisting of milk, calcreose solution and clay poultices, in the cases of pneumonia. The question was put to me recently, "Would you advocate the use of calcreose solution by the general public as a prophylactic?" I replied, "Yes, let the public substitute it for aspirin, in my opinion a dangerous heart depressant, far too prevalently in use."

Two months ago, having sent this treatment to the Cripple Creek, Victor and Colorado Springs mining camps, the six physicians there reported remarkable results in pneumonia cases, even in those high altitudes. On the strength of this report, I have recently been asked to send the treatment to the copper mines of the Anaconda company, at Butte, Montana.

In closing, a word about the scope of what may be reasonably expected of the solution. It does not immunize. It is rapidly excreted. It simply kills the germs, and I believe also exerts a favorable action against the toxæmia. Prolonged use does not seem at all injurious. It can be pushed to any necessary extent in an emergency. Its use in pneumonia requires the services of a skilled physician. However, the nature of the remedy is such that the public can scarcely abuse it. When we have classified the various germs, including the local rascals which have joined the aliens, we can label them and possibly write an epitaph, after the manner of certain cow-boys in a frontier town.

There was a bad man called Jake Deadeye, who had killed several men. Finally, he killed someone under such circumstances as to send the sheriff and a posse after him. He declared he would not be taken alive. The sheriff and posse surrounded his hiding place and finally, to the dismay of the posse, the sheriff deliberately approached Jake. Jake for a few moments was like a flaming torch with his .45 spitting from the hip. Then the sheriff calmly lifted his .45 and shot once. Jake crumbled and fell forward with a bullet between the eyes. The posse rushed up upbraiding the sheriff for his apparent carelessness. "Pshaw, boys," said he, "I always figured none of them hip shooters could hit a barn door beyond fifteen paces, so I waited at fifty paces and let him have it." Certain qualities of Jake seemed to impress his fellow citizens, so they voted him a monument with an epitaph reading as follows: "Here lies the body of Jake Deadeye. He did his damndest. Angels could do no more." (Laughter.)

The Chairman.—The subject is open for general discussion.

Mr. Corning.—I can confirm the previous knowledge of what Dr. Baldwin has said concerning the relationship between creosote and pneumonia.

Many years ago his brother, a practicing physician in central Italy, told my father of his material success in the use of creosote in cases of pneumonia. It seems to have been used in pneumonia and bronchial cases more or less for many years with great success, and is certainly worthy of a trial in cases of influenza and pneumonia.

A short time since, one of the members of the Public Service Commission in New York in talking about the epidemic, which was then at its height, stated that the Commission had requested Mr. Shonts to give it what data he had concerning the incidence of the disease amongst his employees. The result of this inquiry was a statement that, while they could not separate the influenza and related cases from the ordinary cases of sickness, at that time the percentage of illness was between $4\frac{1}{2}\%$ and 5% in the service of the elevated railways and in the subways, 11% on the Fifth Avenue "Bus Lines" and 15% in the surface cars. It seemed of interest that the greater incidence should be on the surface, in the omnibuses and the tramways, and that the minimum percentage of illness was in the subways and in the elevated.

This is more noteworthy as the subway is commonly considered a source of much infection and as it is stated that specialists in respiratory diseases can tell, on inspection of a patient's throat, whether he travels habitually in the subway or not. The fact of value remains that on the surface the percentage of illness amongst employees is far greater than either 30 or 40 feet above or below the ground. The matter would seem to be worth following up to determine what the relative difference in illness is between stationmen, motormen and doormen on the elevated and subways, and between motormen and conductors on the surface lines.

The recrudescence of these epidemics is also worth noting. My brother, being a medical man at Basle in Switzerland, has exceptional opportunities to acquire information concerning matters of this sort. Recent letters from him refer to a recrudescence of the epidemic throughout Switzerland. An earlier maximum of the disease occurred some months ago. The influenza then apparently decreased in a marked degree, but about the first of November letters commenced coming in again stating that the epidemic was on the increase and was notably virulent on the mobilization of the army.

The city of Basle has about 130,000 inhabitants. When the disease first began to increase there were 1900 cases in the week, the following week there were 2500 or 2600 cases, then respectively 3000, 3600, 4200 and I believe the number went as high as 4500. One

week when there were 4000 cases the mortality was 100. These figures represent a large percentage of the population and would seriously affect the business life of the community. It is for this reason that many of us, interested in the employment of many men, can justly give the matter careful consideration, as it is not only worth while from a humanitarian but also from a pecuniary point of view.

Mr. E. P. Mathewson, who unfortunately could not be present here this evening, stated not long ago that at Perth Amboy work was seriously hampered because a large percentage of his men had influenza. The head of the American Brass Company, in Ansonia, stated a couple of months ago that of his 14,000 men 2000 were laid up with influenza. We have all of us read and heard of the cost of the disease in other cities and neighborhoods.

The disease having recurred so quickly in Europe it might well behoove this country to consider the matter most seriously. Some have already done so and endeavored to alleviate the distress and minimize the results of a recrudescence. The second epidemic, both in Switzerland and in England, has been worse than the first one.

(Mr. Corning desires to make the following supplemental statement: "Since the above remarks were offered at the meeting, copies of *Nature* for November have arrived from London. They contain a number of comments on the disease in England, especially London, in one of which the statement is made that the deaths from influenza in London in the four weeks ending November 2, 1918, were in the neighborhood of 4100, whereas the total number of deaths from influenza between the years 1845 and 1890 were only something like 4600 for the full period of 45 years.")

The Chairman.—Is there any further discussion?

Mr. Dorr.—At the last meeting, when Mr. Corning spoke of the work that Dr. Baldwin had done using calcreose, I had just received a letter from Mr. A. L. Blomfield saying that he had lost 15 per cent of the men at the Cresson Mine, at Cripple Creek, which he is managing.

I asked Dr. Baldwin to send some calcreose out there, with instructions regarding its use, and Mr. Blomfield has now written me in part as follows:

At least two of the doctors seem to agree that this medicine is of considerable use, but are careful to state that it cannot be considered a cure-all, and that the doctor's care is just as necessary as without its use. The Cripple Creek doctors with whom I took it up have not had an opportunity to try sufficiently to warrant an opinion. Fortunately, we have been very free from bad cases in Cripple Creek for the last two weeks. We have had a bad time at the Cycle Mill, here in the Springs, and the following figures might be of some interest to you: 55 of the men took full three shots of Mayo Vaccine, with only five cases of "Flu" among them, and none of them serious. Two of the men seemed to take the "Flu" or something very like it, while taking

the shots. Among the other 120 who were not shot previous to the outbreak, over 40 have had the disease, with about 16 serious cases and eight deaths. I have no further information regarding the infusion of blood from recovered "Flu" cases. The figures I think I gave you before were, out of 37 pneumonia cases, 35 recovered after infusion. This doctor still maintains he has had little success with any medicines and does not think anything of the calceose.

The Chairman.—Are there any further remarks?

Professor Peele.—It might be of some interest to state the number of cases that have occurred at Columbia, amongst the students in the training corps. Altogether, there have been during this past fall about 2100 students in the Students' Army Training Corps. In addition to these, some 600 Army and Navy men have been taking courses of some kind. They have all been under the care of three physicians, two regular university physicians and one Army man. I don't know what treatment has been applied. The only thing I can say is that out of that total number, of roughly 2500 or 2600, there have been 150 cases—150 or 155 cases—of which 19 or 20 were serious, and of which there was one death attributable to influenza and its complications. This report I got from the university physician a few days ago. At that time there were still nine cases, and they were all getting along well. A later word from the physician indicated that the one death was all that he would probably expect.

The Chairman.—Is there any further discussion? I hoped that Dr. Sulzer, the Swiss Minister at Washington, would talk to us about the mineral resources of Switzerland, but he states that the mineral resources of Switzerland are something like snakes in Ireland. I then asked him if he wouldn't say something about the replacement of German coal by the new hydro-electric power plants that had been established in Switzerland. I would have been pleased if Dr. Sulzer would have talked to us for a few minutes.

We have with us tonight Mr. Cav. Camillo Cerruti, Chief of the Italian Military Mission, and Mr. Cerruti is a brother mining engineer of great prominence, not only in his own country but also throughout the world. I trust that he will say a few words to us this evening. (Applause.)

Mr. Cerruti.—My friend invited me a few minutes ago to attend a meeting of brother engineers. Of course I accepted with pleasure, because I always feel at home when I am among globe-trotters of this kind. But, I thought I was coming to listen to speeches, not to make one, and this comes quite as a surprise. Then there is another thing that makes me shy about talking to you and it is this, that I think the spirit of Cicero has emigrated from the

other side to this side. (Applause.) Every time I find myself at mining companies in America—it first happened many years ago when I was young—I have to admire the facility with which miners, people I had been accustomed to see pushing a car, can talk. (Laughter.) Furthermore, I am using a language that is not my own; in fact, the language of us engineers is more the pencil than the tongue. Of course, being called on for a few words I will say a few words, not pertaining to our business, but pertaining to the political situation.

I watched from Italy during the period in which the United States was wavering, in which they didn't know what they were going to do. Of course we knew we were expecting salvation from that direction but we could not yet see daylight. We began to see something of it at the beginning of March, and we knew then that it was coming on our side, because we were sure that the country in which the head of the government was the representative of human justice could not have but one way to choose.

I was in Siena, and I was at a prominent hotel. We have no fuel in Italy, and we therefore attach ourselves to any rotten stuff we have. What I was looking for at that time was lignite. Well, anyhow, the story—it is a true story—runs like this: There is a hotel in Siena, we call it the Continental Hotel. The name itself is nothing rare. (Laughter.) The rare point is that there was an American who was among the guests. I won't tell his name, we will call him John. He used to stand at the door of this hotel and he knew everything that was going on in Siena, and once when I was standing there waiting, he said to me, "Now, I am sure that our President is going to declare war during this month. I am sure he is. When he does, I am going to offer you a bottle of champagne." Well, he was not very far off with what concerned the President, because within a few days the President did, but he never did. (Laughter.) Really, I don't bear him any bad feeling because of this. I think he meant to set an example. Perhaps he wouldn't have done so under President Harrison's administration, or President Cleveland's, but he thought it was the right thing to do under President Wilson's administration. (Applause.) Well, gentlemen, I want to add that I feel very pleased to be in this country. I have only been here two months, but I have got the feeling that if I had to settle down here for my life I'd be very happy. (Applause.)

The Chairman.—Are there any further remarks? If not, I think it is in order to move a vote of thanks to the gentlemen who have been kind enough to come here this evening to address us. (Motion to this effect was made and carried.)

I think it would be absolutely in order that the minutes of the discussion this evening should be placed at the disposal of the two mining journals of America if the respective editors thereof so desire. Is there any further business before the meeting? If not a motion to adjourn is in order.

Meeting adjourned at 9:45 p. m.

F. F. SHARPLESS,
Section Secretary.

COUNCIL. EXECUTIVE COMMITTEE.

Meeting of December 3, 1918.

At the call of the President, a meeting of the Executive Committee was held at the Engineers' Club, on Tuesday, December 3, 1918, at 4:30 p. m. Those present were Messrs. Ingalls, Sharpless and Huntoon.

The President opened the meeting by reading the following motion, which had been passed by the Council at its meeting of November 4, 1918:

That it is the sense of this meeting that it approves the contemplated program of entering into the campaign for "Reconstruction" and that the Executive Committee is hereby empowered to initiate committees, the members of which are to be appointed by the President.

After some discussion, favorable action was taken on the appointment of committees on,

Antimony	Molybdenum	Sulphur and Pyrite
Chromium	Potash	Tin
Manganese	Platinum	Tungsten
	Status of Gold Mining	

A general committee on Economics.

A general committee on Employment of Maimed Soldiers.

A general committee on Re-employment of Engineers.

Furthermore, it met with the approval of the Executive Committee that each committee should consist of three members, the President reserving the authority to appoint more than three if deemed advisable.

There being no further business, the meeting adjourned.

LOUIS D. HUNTOON,
Secretary.

HOWARD WEIDENER DU BOIS.

H. W. Du Bois, as he signed himself, was born on September 16, 1868. After graduating from the Central High School in Philadelphia, he entered Lehigh University with the class of 1892, and still later, during the year of 1893, he took up special work at Princeton University.

From 1896 until 1904, Du Bois was Professor of Applied Mathematics at the Central High School, Philadelphia, but throughout much of this period he was occupied with mining and geological exploratory work, and as early as 1895 he had, in fact, established an assay laboratory at Ishpeming, Michigan, in conjunction with Charles T. Mixer as partner. Du Bois did not then however, nor later, give up his residence in Philadelphia.

Beginning with 1905, and lasting until his death, H. W. Du Bois, was engaged in mining work in the United States, but his principal activities kept him in Alaska and British Columbia. It was in connection with his duties in the latter country that Du Bois supervised the construction of a rather large hydraulic plant, which included dams, ditches and wooden-stave siphons, delivering water under high pressure. Also, he conducted the exploration and development of a copper property in Alaska and made a prolonged study of the flotation process in relation to the treatment of the ores. The summer of 1918 was spent in Alaska on this work, and Du Bois had returned from the property only a short time before his death, on November 10, 1918. He was a member of Du Bois & Armas, mining engineers, with offices in the Harrison Building, Philadelphia.

Du Bois will best be remembered by many of his friends for his interesting lectures on engineering subjects. He collected large numbers of photographs and pictures illustrating the fauna of British Columbia and Alaska, and his lectures were replete with facts of interest both to engineers and the general public. In this way he did much to popularize mining science.

Du Bois was a member of the American Institute of Mining Engineers, the American Society of Political and Social Science, the Photographic Society, the Geographical Society, the National Geographic Society, and a charter member of the Mining and Metallurgical Society of America.

CHANGES OF ADDRESS.

Alsdorf, F. C. 425 West 118th Street, New York
Brown, R. Gilman. Pinners Hall, Austin Friars, London E.C. 2, Eng.
Honnold, W. L. 3 Rue des Italiens, Paris, France



HOWARD WEIDENER DU BOIS

Keene, A. F. Room 1100, 42 Broadway, New York
 Lachmund, Oscar. 822 Paulsen Building, Spokane, Wash.
 Payne, Henry M. Room 1870, 50 Church Street, New York
 Shaw, S. F. 226 Argyle Ave., San Antonio, Texas
 Steubing, W. C. 270 No. Stone Street, Tucson, Ariz.
 Wayland, R. G. 1012 Washington Ave., Chehalis, Wash.
 Yeatman, Pope. 1118 Spruce Street, Philadelphia, Pa.

PERSONALS.

A Correction: H. A. Guess writes to deny that he has become general manager of the Nevada Consolidated, as reported on page 370 in the November BULLETIN. It is understood that this faulty piece of news was first issued by a Nevada correspondent.

Percy E. Barbour, Captain of Engineers, received a week's leave during the holidays, and visited New York City.

A. H. Brooks, under Army Orders of December 23, was promoted to the rank of Lt. Colonel of Engineers.

Alvin B. Carpenter, who, as noted in a recent BULLETIN, is in charge of the Pine Creek Tungsten mine in Inyo Co., California, is reported to have completed the mill about November 1. An unsigned article devoted to this undertaking is published in the *Mining and Oil Bulletin* for November, and another, by Mr. Carpenter himself, is promised for a later issue.

Louis S. Cates and Stanly A. Easton have been nominated for two of the directors of the American Institute of Mining Engineers for 1919.

J. Parke Channing participated in the Reconstruction Conference held in Atlantic City early in December. Mr. Channing was chairman of the "Industrial Professions" division and addressed the conference; his address, "Reciprocity on the Part of Labor needed to solve Industrial Problem," is printed in abstract in the *Engineering and Mining Journal* for December 14.

March F. Chase was one of the speakers at the December meeting of the Washington section of the A. I. M. E. The general subject for discussion was "Reconstruction."

Eli T. Conner made an address before the Canadian Mining Institute, at its twentieth annual meeting; his subject was "Anthracite Production and Resources of the United States." The address appears in part in the C. M. I. *Bulletin* for December, and among other interesting data, mention is made of estimates of the total reserve anthracite tonnage prepared in 1912 by Mr. Conner in conjunction with Mr. William Griffith.

F. G. Cottrell has been elected one of the vice-chairmen of the Washington section of the American Institute of Mining Engineers.

J. S. Douglas, who was in the United States during the summer, has returned to France to again take up his Red Cross work. Mr. Douglas is a major and Director of Warehouses.

Walter Douglas, who has been on an extended tour of inspection in the Southwest, has returned to New York City.

A. S. Dwight, Major of the 11th Engineer Regiment, who was assigned to assist in the production of lead in the south of France, has now taken up metallurgical reclamation work.

L. C. Graton and H. L. Smyth have been formally appointed respectively Professors of Economic Geology and of Mining and Metallurgy in the recently reorganized School of Engineering at Harvard University. This reorganization has resulted from the failure of the plan to amalgamate the Massachusetts Institute of Technology with Harvard.

W. L. Honnold announced on November 26 that he will be temporarily located in Paris from shortly after that date. His connection with the Commission for Relief in Belgium remains the same.

Herbert C. Hoover is reported by the *Engineering and Mining Journal* to have been the guest of honor at a reception in Brussels, on December 6. It seems quite apparent from the news reaching this country that Mr. Hoover will hold a commanding position in the general work of relief on the continent of Europe, not only as representative of the United States, but perhaps also by appointment of the Allies.

Louis D. Huntoon and William Young Westervelt are members of a large committee organized to conduct an Alumni Fund Campaign to raise \$600,000 to meet the deficit of Columbia University caused by war conditions.

W. R. Ingalls' name appears at the bottom of a letter which discusses "The Gold Question", and which is printed in the *Engineering and Mining Journal* for November 23. It is stated that this letter, in the first instance, was addressed to a well known professor of economics. Mr. Ingalls, by the way, has been elected a corresponding member of the Canadian Mining Institute. The Council of the C. M. I. took this action in recognition of Mr. Ingalls' many courtesies.

D. C. Jackling, representing the Utah Copper Co., etc., Walter Douglas and James MacNaughton, respectively representing the Calumet & Helca Mining Co. and the Phelps Dodge Corporation, are directors of the recently instituted Copper Export Association, Inc.

Archibald Douglas, of counsel to the M. and M. Society, is also a member of this board, and represents the United Verde Extension.

James Ellwood Jones has followed the precedent adopted last year and is to be a resident of New York City during the winter months.

Oscar Lachmund, until recently general manager of the Canada Copper Corporation, returned to Greenwood, B. C., something like a month ago, to give consideration to a plan for the establishment of a customs smelter at this point. As a nucleus it is proposed to take over the plant of the above named company, and, according to an announcement in the *Northwest Mining Truth*, this new undertaking may receive government aid.

John Langton left this country for Java on December 28. He expects to be absent for at least three months.

Joseph Hyde Pratt has been advanced to the rank of Colonel of the Engineer Corps in accordance with an order issued by the War Department on December 13. Colonel Pratt is in command of the 105th Engineers, one unit of the 30th Division, A. E. F.

Edgar Rickard, since the departure of Mr. Hoover for Europe, has become the acting head of the Federal Food Administration. Officially, however, Hoover remains Food Administrator of the United States.

Milnor Roberts, Professor of Mining and Metallurgy at the University of Washington, will, it is announced by the *Engineering and Mining Journal*, deliver on June 4, 1919, an address on "The Stimulus to Research Given by the War" before the Sigma Xi convention, to be held at the university.

Forest Rutherford, who, as earlier reported, had been in Colorado, returned to New York City in November.

F. F. Sharpless, under date of November 23, writes to the *Engineering and Mining Journal* on the situation today of the chrome and manganese ore producers.

E. A. Cappelen Smith has been elected a vice-president of the Chile Exploration Co., and of also the Braden Copper Co. As is known, Mr. Smith is consulting metallurgist to these two companies.

H. DeWitt Smith has received an appointment in the service of the Aircraft Production Board. He has been assigned to Dayton, Ohio, where J. F. McClelland is also stationed. Mr. Smith was recently in New York, and attended the N. Y. Section meeting of December 16.

E. Gybbon Spilsbury is the appointee of the American Institute of Mining Engineers as one of a number of delegates to represent the four founder societies at an engineering congress in Paris. Ac-

cording to report, the invitation to American engineers is semi-official as the French government is co-operating in this congress, which to a large extent will be devoted to the rehabilitation of France. Mr. Spilsbury sailed on December 5.

George C. Stone, who became associated with the non-ferrous section of the War Industries Board some little time ago, is endeavoring to stimulate interest in new uses for zinc, in order to equalize the increased capacity of the smelters, expanded during the war. He feels that sheet zinc should be better known and that zinc castings should have a wider adaptation.

Audley Hart Stow writes to the Secretary that he is still actively engaged in the development of manganese deposits in Virginia.

H. H. Stout, Lt. Colonel of Ordnance, is now on the other side. He is reported to have sailed from this country about November 1.

Whitman Symmes was in New York City early in the month, but returned to Nevada after a very short stay.

J. B. Tyrrell was in the Porcupine district in the latter part of November. Mr. Tyrrell has been particularly active in the field during the past four or five months, and his work has taken him in many different directions.

R. B. Watson is one of the subscribers to certain proposed amendments to the by-laws of the Canadian Mining Institute. Among the amendments offered, one refers to membership qualifications and is apparently in the right direction.

Russell G. Wayland writes from Camp Humphreys, Virginia, that he was appointed 1st Lieutenant of Engineers on October 12, and assigned to the first company, E. O. T. S., for training. He further states that he will remain in camp until about February 15, and will then be placed on the inactive list as a reserve officer.

O. R. Whitaker was professionally engaged in Mexico during the last days of November and early in December.

Horace V. Winchell is the nominee for the presidency of the American Institute of Mining Engineers, and Edwin Ludlow and A. R. Ledoux are the nominees for vice-presidents, on the ticket submitted by the Nominating Committee.

Harry J. Wolf, in the week ending November 23, spent some days in Colorado Springs superintending certain metallurgical experiments. At about this same time, Mr. Wolf made an examination of mineral properties in Saguache Co., Colorado.

Pope Yeatman, who has been in Europe on behalf of the War Industries Board, returned to this country on the Baltic just in time for Christmas. Mr. Yeatman has now given a Philadelphia address, which may be presumed to mean the wind-up of his work in Washington.

**MEMBERS OF THE SOCIETY WHO HAVE BEEN
CALLED INTO THE SERVICE OF THE U. S.
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 Edwin S. Berry.....Capt., 27th Engineers
 Reginald W. Brock.....Major of Canadian forces
 Alfred H. Brooks.....Lt. Col., Engineer Corps, A. E. F.
 Gelasio Caetani.....Capt., 1st Reg. of Engineers, Italian Army
 M. F. Chase.....Dir. Explosives Division, War Ind. Board
 C. R. Claghorn.....Lt., U. S. Naval Reserve Force
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 Welton J. Crook.....Officers' Training Camp
 Benedict Crowell....Major, Eng. Corps; Asst. Secretary of War
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 J. S. Douglas....Maj. and Dir. Warehouses, American Red Cross
 Francis Drake.....British Aircraft Production Department
 A. S. Dwight.....Major, 11th Engineers, A. E. F.
 Baird Halberstadt....Fed. Fuel Administrator, Schuylkill Co., Pa.
 W. L. Honnold.....Am. Dir., Com. for Relief in Belgium
 Herbert C. Hoover.....U. S. Food Administrator
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 Donald M. Liddell.....Capt., Aviation Sect., Signal Corps
 Halstead Lindsley.....Major, Ordnance Corps
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 Charles W. McMeekin.....Major, Engineer Corps
 C. H. Macnutt.....Lt. of Engineers in Canadian forces
 B. Magnus.....Capt., Engineer Corps
 W. W. Mein.....Assistant Secretary of Agriculture
 C. W. Merrill.....Div. of Chemicals, U. S. Food Administration
 H. G. Moulton.....Engineer, War Industries Board
 Seeley W. Mudd.....Col. and Asst. Dir., U. S. Explosives Plants

O. B. Perry.....	Lt. Col., 27th Engineers
Joseph Hyde Pratt.....	Col., 105th Engineers, A. E. F.
A. L. Queneau.....	Officer Interpreter, French Army
M. L. Requa.....	Chief of Oil Div., U. S. Fuel Administration
Edgar Rickard.....	U. S. Food Administration
A. P. Rogers.....	Materials Dept., Signal Corps
W. L. Saunders.....	Chairman, U. S. Naval Consulting Board
Stanley C. Sears.....	Capt., Engineer Corps
Millard K. Shaler.....	Hon. Sec., Com. for Relief in Belgium
J. E. Spurr.....	U. S. Shipping Board
George C. Stone.....	War Industries Board
H. H. Stout.....	Lt. Col., Ordnance Corps
S. A. Taylor.....	Tech. Advisor, U. S. Fuel Administration
S. C. Thomson.....	War Export Board
Arthur L. Walker.....	Con. Met. to Chief of Ordnance, U. S. A.
R. G. Wayland.....	Lt., Engineer Corps
William Young Westervelt....	Chairman, War Minerals Committee
Pope Yeatman.....	Chief, Non-Ferrous Metals Sec., War Ind. Brd.

DIED IN THE SERVICE OF THEIR COUNTRY.

William Hague.....	January 1, 1918
J. D. Irving.....	July 20, 1918

Mining and Metallurgical Society *of* America



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COMMITTEES

May 1, 1918

115 Broadway, New York

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Austin, L. S.	251 West 2d North St., Salt Lake City, Utah Consulting Metallurgist.
Bain, H. Foster	U. S. Bureau of Mines, Washington, D. C. Assistant Director.
Ball, S. H.	42 Broadway, New York Mining Geologist.
Bancroft, Howland	730 Symes Bldg., Denver, Colo. Consulting Mining Geologist.
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Bellinger, H. C.	Chuquicamata, Chile, S. A. Gen. Mgr., Chile Exploration Co.
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Claghorn, C. R.	Claghorn, Indiana Co., Pa. Supt., Vinton Colliery Co.
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Cobb, Collier.	Univ. of North Carolina, Chapel Hill, N. C. Professor of Geology.
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- Irving, J. D.Yale University, New Haven, Conn.
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- Jennings, Hennen2221 Massachusetts Ave., Washington, D. C.
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- Jennings, Sidney J.120 Broadway, New York
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- Keith, Frank A.1219 Hollingsworth Bldg., Los Angeles, Cal.
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- Kelly, WilliamVulcan, Mich.
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- Kinzie, Robert A.First Nat. Bank Bldg., San Francisco, Cal.
Mining Engineer.
- Kirby, E. B.918 Security Bldg., St. Louis, Mo.
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- Kirchen, John G.Tonopah, Nev.
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Mining Engineer.
- Knox, Newton B.9 Upper Hamilton Ter., N. W., London, England
Consulting Engineer.

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Liddell, Donald M.	1341 North Ave., Elizabeth, N. J. Consulting Engineer, Merrill, Lynch & Co.
Lindberg, C. O.	1212 Hollingsworth Bldg., Los Angeles, Cal. Consulting Mining Engineer.
Lindgren, W.	Mass. Inst. of Technology, Cambridge, Mass. Head of Department of Geology.
Lindsley, Halstead	60 Broadway, New York Mining Engineer.
Linton, Robert	525 Penn Ave., Pittsburgh, Pa. Mining Engineer.
Lloyd, R. L.	29 Broadway, New York Consulting Metallurgical Engineer.
Loring, W. J.	1018 Crocker Bldg., San Francisco, Cal. Mining Engineer.
Ludlow, Edwin.....	Lansford, Pa. Vice-Pres., Lehigh Coal & Navigation Co.
Ludlum, A. C.	2 Rector St., New York Pres., New York Engineering Co.
Lyman, Benjamin Smith	269 South 4th St., Philadelphia, Pa. Mining Engineer.
Lyon, D. A.	U. S. Bureau of Mines, Washington, D. C. Metallurgist.
McClelland, J. F.	Drawer C., Yale Station, New Haven, Conn. Prof. of Mining Engineering, Yale University.
McCreath, Andrew S.	Harrisburg, Pa. Consulting Chemist.
McMeekin, Charles W.	Army War College, Washington, D. C. Mining Engineer.
MacLennan, F. W.	Miami, Ariz. Assistant Manager, Miami Copper Co.

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MacNaughton, James	12 Ashburton Pl., Boston, Mass. Vice-Pres. and Gen. Mgr., Calumet & Hecla Mining Co.
Macnutt, C. H.	c/o Dr. H. A. Sims, 133 Durocher St., Montreal, Can. Mining Engineer.
Magnus, B.	American Metal Co., Ltd., 61 Broadway, New York Consulting Engineer.
Mann, William S.	P. O. Box 772, Gilbert, Minn. Mining and Metallurgical Engineer.
Martin, O. C.	549 Walnut St., Richmond Hill, New York Works Mgr., Nichols Copper Co.
Mayer, Lucius W.	42 Broadway, New York Consulting Mining Engineer.
Mein, W. W.	43 Exchange Pl., New York Mining Engineer.
Melzer, Gustav Emil	Baker City, Oregon Consulting Mining Engineer and Metallurgist.
Mercer, J. W.	15 Broad St., New York Mine Manager
Merrill, Charles W.	121 Second St., San Francisco, Cal. Consulting Metallurgical Engineer.
Metcalfe, G. W.	Kennett, Shasta Co., Cal. Manager, Mammoth Copper Mining Co.
Moore, Carl F.	P. O. Box 385, Boston, Mass. Consulting Engineer.
Moore, George	28 Dock St., Yonkers, N. Y. Mining Engineer.
Moore, P. N.	611 Merchants Laclede Bldg., St. Louis, Mo Consulting Metallurgist.
Moulton, H. G.	14 Wall St., New York Consulting Engineer.
Mudd, S. W.	2400 16th St., N. W., Washington, D. C. Mining Engineer.
Munro, C. H.	120 Broadway, New York Mining Engineer.
Munroe, Henry S.	Litchfield, Conn. Professor Emeritus of Mining, Columbia University.
Nason, Frank L.	West Haven, Conn. Geologist and Mining Engineer.
Newsom, J. F.	913 Hobart Bldg., San Francisco, Cal. Mining Engineer.
Nichols, Ralph	P. O. Box 204, Salt Lake City, Utah Consulting Mining and Metallurgical Engineer.
Norris, R. V.	520 Second Natl. Bk. Bldg., Wilkes Barre, Pa. Consulting Mining Engineer.
Notman, Arthur	Copper Queen Cons. Mining Co., Bisbee, Ariz. Geologist.
Oliver, E. L.	503 Market St., San Francisco, Cal. Consulting Metallurgist; Mgr., Oliver Continuous Filter Co.
O'Neil, F. W.	Ingersoll-Rand Co., 11 Broadway, New York Asst. Gen. Sales Manager.

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Director, Anthracite Bureau of Information.
- Parker, Richard A.802 Equitable Bldg., Denver, Colo.
Consulting Mining Engineer.
- Parsons, Floyd W.10th Ave. and 36th St., New York
Editor, *Coal Age*.
- Patterson, G. S.Vivian, McDowell Co., W. Va.
Mining Engineer.
- Payne, Henry M. ...1203 Chamber of Commerce Bldg., Pittsburgh, Pa.
Consulting Mining Engineer.
- Peele, RobertColumbia University, New York
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- Penrose, R. A. F., Jr.460 Bullitt Bldg., Philadelphia, Pa.
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- Pomeroy, William A.806 Hobart Bldg., San Francisco, Cal.
Mining Engineer.
- Pratt, Joseph HydeUniv. of North Carolina, Chapel Hill, N. C.
Prof. of Geology; State Geologist.
- Prichard, W. A.587 Mills Bldg., San Francisco, Cal.
Mining Engineer, Oroville Dredging, Ltd.
- Probert, Frank H.28 Oakvale Ave., Berkeley, Cal.
Prof. of Mining, University of California.
- Provot, F. A.Columbia University Club, New York
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- Pyne, Francis R.U. S. Metals Refining Co., Chrome, N. J.
Assistant Superintendent.
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Metallurgical Engineer; Chloride Syndicate, Ltd.
- Rawlings, Stuart L.Cerro de Pasco Mining Co., Lima, Peru
Mining Engineer.
- Raymond, R. M.Columbia University, New York
Professor of Mining.
- Requa, M. L.2306 Massachusetts Ave., Washington, D. C.
Mining Engineer.
- Rice, George S.U. S. Bureau of Mines, Washington, D. C.
Chief Mining Engineer.
- Richards, Robert H.Mass. Inst. of Technology, Cambridge, Mass.
Prof. Emeritus of Mining and Metallurgy.
- Rickard, Edgar1821 19th St., N. W., Washington, D. C.
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Gen. Mgr., Hollinger Cons. Gold Mines, Ltd.
- Roberts, Milnor4505 15th Ave., N. E., Seattle, Wash.
Prof. of Mining and Metallurgy, University of Washington.
- Robertson, William FleetDept. of Mines, Victoria, B. C.
Provincial Mineralogist of British Columbia.
- Roger, John32 West 40th St., New York
Mechanical and Metallurgical Engineer.
- Rogers, Alexander P....Ray Cons. Copper Co., 25 Broad St., New York
Consulting Mining Engineer.
- Rogers, Allen H.201 Devonshire St., Boston, Mass.
Consulting Mining Engineer.
- Rogers, Edwin M.32 Broadway, New York
Consulting Mining Engineer.
- Rohn, OscarButte, Mont.
Mining Engineer.
- Ropp, Alfred de233 Broadway, New York
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- Rubidge, F. T.41 Broad St., New York
Mine and Railroad Manager, Ladenburg, Thalmann & Co.
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- Sanders, R. H.716 Drexel Bldg., Philadelphia, Pa.
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Geologist.
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- Sherman, GeraldCopper Queen Cons. Mining Co., Bisbee, Ariz.
Superintendent, Mine Department.
- Sinn, Francis P.....365 Columbia Ave., Palmerton, Pa.
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- Sizer, F. L.1006 Hobart Bldg., San Francisco, Cal.
Mining Engineer.

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Smith, William Allen	Herculaneum, Mo.
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Spurr, J. E.	1755 Park Rd., Washington, D. C.
Member, Com. on Mineral Imports and Exports.	
Starr, George W.	Grass Valley, Cal.
General Manager, Empire Mines.	
Staunton, W. F.	512 South Harvard Blvd., Los Angeles, Cal.
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Stow, Audley Hart	Pocahontas, Va.
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Thacher, Arthur	900 Security Bldg., St. Louis, Mo.
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Mgr., Alaska-Gastineau Mg. Co. and Kensington Mg. Co.	
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Head of Mining Dept., New Jersey Zinc Co.	

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Gen. Mgr., Tennessee Copper Co.
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Mining Geologist and Consulting Engineer.
- Van Arsdale, G. D.99 John St., New York
Research Chemist, Phelps Dodge Corporation.
- Van Law, C. W.55 Congress St., Boston, Mass.
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- Van Mater, J. A.New Jersey Zinc Co., 55 Wall St., New York
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- Van Wagenen, Hugh R.1225 Foster Bldg., Denver, Colo
Mining Engineer.
- Walker, Arthur L.Columbia University, New York
Professor of Metallurgy
- Waterman, DouglasBox 1735, Havana, Cuba
Mining Engineer.
- Wayland, R. G.Treadwell, Alaska
Gen. Supt., Alaska Treadwell Gold Mining Co.
- Webb, H. H.233 Broadway, New York
Con. Engr., Cons. Gold Fields of South Africa.
- Weed, Walter Harvey.....29 Broadway, New York
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- Weeks, F. D.American Metal Co., Ltd., 61 Broadway, New York
Metallurgical Engineer.
- Welch, J. CuthbertP. O. Box 248, Tooele, Utah
Metallurgical and Mining Engineer.
- Weld, C. M.2 Rectör St., New York
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- Wentworth, Henry A.55 Congress St., Boston, Mass.
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- Westervelt, William Young17 Madison Ave., New York
Consulting Mining Engineer.
- Wethey, A. H.1104 Windsor Ave., Salt Lake City, Utah
Mining Engineer.
- Whitaker, O. R.932 Equitable Bldg., Denver, Colo.
Consulting Mining Engineer.
- White, Rush J.519 Bank St., Wallace, Idaho
Mining Engineer.
- White, R. T.American Smelting & Refining Co., Caldera, Chile
Mining Engineer.
- Whitley, Charles W.714 McCornick Bldg., Salt Lake City, Utah
Gen. Mgr., Utah Dept., A. S. & R. Co.
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- Williams, Ralph B.Rm. 2202, 120 Broadway, New York
Mining Engineer.

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Winchell, Horace V.	826 First Nat.-Soo Line Bldg., Minneapolis, Minn.	Mining Geologist.
Wright, Louis A.	Casilla 125-D, Santiago, Chile	Consulting Mining Engineer.
Yeatman, Pope ...	Council National Defense Bldg., Washington, D. C.	Mining Engineer.
Young, Geo. J.	10th Ave. and 36th St., New York	Asst. Editor-in-Chief, <i>Engineering and Mining Journal</i> .

DECEASED MEMBERS.

	DATE
Bettles, Alfred J.	Aug. 3, 1911
Blake, William P.	May 22, 1910
Browne, David H.	Mar. 30, 1917
Buckley, E. R.	Jan. 19, 1912
Carpenter, Franklin R.	April 1, 1910
Christy, S. B.	Nov. 30, 1911
Clark, W. B.	July 27, 1917
Comstock, Theodore B.	July 26, 1918
Dudley, Charles B.	Dec. 21, 1909
Emmons, Samuel Franklin	Mar. 28, 1911
Forrester, Robert	Dec. 20, 1910
Guiterman, Franklin	May 2, 1915
Hague, William	Jan. 1, 1918
Havard, F. T.	May 22, 1913
Hayes, C. Willard	Feb. 8, 1916
Hill, Frank A.	July 13, 1915
Hoffmann, A. O.	1913
Holmes, Joseph A.	July 13, 1915
Lathrop, W. A.	April 12, 1912
Maynard, George W.	Feb. 13, 1913
Merriam, W. N.	June 13, 1916
Merrill, F. J. H.	Nov. 20, 1916
Milliken, Geo. F.	Jan. 29, 1916
Patch, Maurice B.	Dec. 2, 1913
Potter, W. B.	July 13, 1914
Pringle, Chas. A.	Jan. 10, 1916
Riter, George W.	Aug. 20, 1916
Shelby, Charles F.	Jan. 25, 1911
Sutton, Linton B.	June 11, 1911
Thompson, Heber S.	Mar. 9, 1911

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Wayland, R. G.

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Notman, A.
Sherman, G.
Smith, F. W.

DOUGLAS

Douglas, J. S.

HUMBOLDT

Colvocoresses, G. M.

MIAMI

Gottsberger, B. B.
MacLennan, F. W.

OATMAN

Burgess, J. A.

RAY

Cates, L. S.

TUCSON

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Steubing, W. C.

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Probert, F. H.

GRASS VALLEY

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Foote, A. D.
Starr, G. W.

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Metcalf, G. W.

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Staunton, W. F.

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Newsom, J. F.
Oliver, E. L.
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Queneau, A. L.

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Professional Training

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